

THE NIDIFICATION
OF
BIRDS OF THE INDIAN EMPIRE

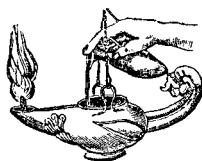
BY
E. C. STUART BAKER, C.I.E., O.B.E., F.Z.S. ETC.

VOLUME I.
CORVIDÆ—CINCLIDÆ.

WITH EIGHT PLATES.

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CONTENTS.

	Page
PREFACE	v
LIST OF PLATES	vii
INTRODUCTION	ix
Order PASSERES:—	
Family CORVIDÆ	1
Family PARIDÆ	58
Family PARADOXORNITHIDÆ	78
Family SITTIDÆ	89
Family TIMALIIDÆ	100
Family PYCNONOTIDÆ	333
Family CERTHIIDÆ	410
Family TROGLODYTIDÆ	418
Family CINCLIDÆ	436
ALPHABETICAL INDEX	443

PREFACE.

THE present volume includes notes on the nidification of all those families of birds contained in my first Bird-volume of the 'Fauna of British India,' plus the *Cinclidæ*, which commences the second volume. The families dealt with are: (1) The *Corvidæ*, or Crow family; (2) the *Paridæ*, or Titmice; (3) the *Paradoxornithidæ*, or Parrot-Bills, formerly known as Crow-Tits; (4) the *Sittidæ*, or Nuthatches; (5) the *Timaliidæ*, or Babbler and Laughing-Thrushes; (6) the *Pycnonotidæ*, or Bulbuls; (7) the *Certhiidæ*, or Tree-Creepers; (8) the *Troglodytidæ*, or Wrens; and (9) the *Cinclidæ*, or Dippers. The total number of individual species and subspecies dealt with in the 'Fauna' belonging to these families was 480 and, since that volume was written, more races have been recognized, giving a gross total of 494.

It is interesting, but rather difficult, to compare the present work with the 2nd edition of Hume's 'Nests and Eggs' written by Oates in 1889. At that time the accepted number of species in the families and genera included in the present volume was 332, as against the 480 species and subspecies recognized in my work, giving, with the additional races above referred to, a total of 494. In many cases, however, Oates includes under the one binomial two or more geographical races which are represented now by trinomials.

Of the 332 species accepted by Oates in the 1st edition of the 'Fauna' he was able to record the nidification of 158 species only, a little over 48 per cent. It is now possible to record the breeding habits of 408 species and subspecies, equivalent to over 82 per cent., showing that the field-knowledge of our Indian Avifauna has increased in a greater proportion than has the mere recognition of new species and subspecies.

At the same time it will astonish many of our field-naturalists to learn that nothing at present is known of the nidification of so many birds. Of the 86 species and subspecies all mention of whose nidification is wanting in the present volume, there are a few which breed outside our area whose breeding habits are known, but there are still about 78 species and subspecies of which nothing has yet been recorded. A comparatively large proportion of these refer to birds on our extreme North-Eastern and Eastern boundaries or in extreme Southern Burma, but there are still many birds, not all of them by any means rare, in various parts of the Indian Empire whose breeding habits are still a closed book to us.

There are one or two points in the format to which I may draw attention. Each bird is numbered with the same number as that used in the 'Fauna' and may not always be consecutive in the present work. An innovation is the placing in brackets of the author's name after a bird originally described under a different genus. This course has been felt desirable, as no first reference to the name has been given.

Finally, it will probably be observed that my descriptions are somewhat dry and brief. I have seldom indulged in ornate or lengthy descriptions of the often beautiful surroundings of nests which are in themselves beautiful objects. This, unfortunately, was a necessary restriction where space had to be considered, for, if one indulged in descriptions long in proportion to one's admiration, our four proposed volumes would have had to be extended into some number more like fourteen.

E. C. STUART BAKER.

6 Harold Road, S.E. 19.
18th November, 1932.

LIST OF PLATES.

	Page
I. CORVUS SPLENDENS ZUGMAYERI. The Sind House-Crow. Karachi, Sind, 1918 (Capt. R. S. P. Bates)	18
II. PARUS MAJOR MAHRATTARUM. The Southern Grey Tit. Kotagiri, Nilgiri Hills, 26.4.25 (Capt. R. S. P. Bates) ..	61
III. PSITTIPARUS GULARIS TRANSFLUVIALIS. The Burmese Grey-headed Parrot-Bill. North Cachar, 26.4.91 (E. C. Stuart Baker)	88
IV. TROCHALOPTERON PHENICIUM BAKERI. The Cachar Crimson-winged Laughing-Thrush. Path through woods in which <i>T. p. bakeri</i> commonly breeds. Near Laisung, N. Cachar Hills, May 1894. (E. C. Stuart Baker)	129
V. TROCHALOPTERON VARIEGATUM SIMILE. The Western Variegated Laughing-Thrush. Dungagali, 1905 (Col. R. H. Ratray)	135
VI. TROCHALOPTERON JERDONI FAIRBANKI. The Travancore White-breasted Laughing-Thrush. Kodaikanal, Palni Hills, 1929 (Capt. R. S. P. Bates)	139
VII. TURDOIDES TERRICOLOR SINDIANUS. The Sind Jungle- Babbler. Dera Ghazi Khan, April 1903 (Col. R. H. Ratray)	154
VIII. PELLORNEUM RUFICEPS RUFICEPS. The Southern Spotted Babbler. Mahableshwar, 1922 (Capt. R. S. P. Bates)	201

INTRODUCTION.

It is possible that many of those who, I hope, will read the following volumes on Indian Oology have not much knowledge of the history of this science in India. It may be interesting, therefore, to give a rough idea of how it has progressed and through the work of what ornithologists, field-naturalists and "mere observers" it has been advanced to the stage in which we now find it.

It is almost exactly a hundred years since 1832, when the first volume of the 'Journal of the Asiatic Society of Bengal' appeared in place of the monthly magazine entitled 'Gleanings in Science.' The first ornithological paragraph in this journal appears on p. 99, where, in a reprint of Dr. Royle's presidential address to the Society, he refers to the number of species of birds represented in his collection, "in all 233 species." Then at pp. 261 *et seq.* we have the important article entitled "Catalogue of Indian Birds," which includes Franklin's list of birds obtained between Calcutta and Benares etc., as well as Gould's list of Rare Birds from the Himalayas. From that volume onwards important papers on Ornithology constantly appear, though Oology was still almost unthought of and never mentioned.

In 1864 Jerdon's 'Birds of India' came out. Jerdon was a lover of the bird in the field as well as a keen student of the skin in the Museum and his three volumes are full of delightful field-notes on the habits of the various birds of which they treat, but those on nidification are comparatively scanty and sometimes misleading.

It was not, however, until five years later than this, or thirty-seven years later than the first Asiatic Journal, that any work appeared in India in which Oology was recognized at its real value. The volume referred to is Alan Hume's 'My Scrap Book : or Rough Notes on Indian Oology and Ornithology,' published in 1869. This work served, first, to show how very little was then known

about Indian Oology and, secondly, as an appeal for help to improve on this knowledge and to aid the writer "in gathering together materials for a really satisfactory account of the nidification and eggs of our Indian Birds."

In a lengthy footnote Hume gives reasons for the study of Oology and makes an attempt to show its value as a science, certainly subordinate to, yet of real importance as an aid to, the greater science of Ornithology. This reasoning we need not refer to here, but it evidently impressed its readers, for Hume at once obtained helpers in almost every province in India and, so quickly did he get together information on the desired subject, that in a very few years he was in a position to publish a preliminary volume on Indian Oology.

It was in 1873, only four years after 'Rough Notes' appeared, that Hume published his first edition of 'Nests and Eggs of Indian Birds,' a work which was a compilation of practically all that was then known on this subject and included the combined results of an immense amount of field-work done by a very large number of field-naturalists. First and foremost of all workers one must mention W. Davison, who worked for Hume as a regular assistant for many years in many parts of India and Burma. The majority of the others were experts who had long been interested in the life-histories of the birds of their own provinces, amongst whom we might especially mention the following :—R. Thompson, the brothers F. R. and W. Blewitt, W. Theobald, Miss M. Cockburn, H. M. P. Carter, R. M. Adam, the brothers T. F. and F. Bourdillon and Dr. G. King, all of whose activities lay principally in Southern India and, because of their wealth of observation, it is possible that the Nilgiri birds are better known to this day than those of any other part of India. The North and North-West of India engaged the attentions of two other brothers in Col. G. F. L. and Col. C. H. T. Marshall, Captain Cock, F. Wilson (better known as "Mountaineer"), W. E. Brooks and Col. H. Tytler; the Bombay side produced many observers whose names will live long in Ornithology, such as J. Davidson, Messrs. B. and E. H. Aitken ("Eha"), Captains Beavan and Repton and many others; from Ceylon there are the records of E. Butler, from Calcutta those of J. C. Parker, and from Darjiling endless notes by both Capt. Hutton and Gammie, whilst of the observers in Burma the names of E. W. Oates and J. L. Darling stand out conspicuously.

In every part of the Indian Empire there were others whose names appear from time to time in the pages of 'Nests and Eggs,' such as Fielden, Anderson, Unwin, Tickell, Nunn, Bruce, Fairbank etc., etc., too numerous to mention here ; but it should be observed that Hume himself says that his regular correspondents were more than sixty in number.

In addition to these actual collectors, Hume had the published works, as well as the personal help, of Edward Blyth, T. C. Jerdon and, above all, B. H. Hodgson, whose voluminous unpublished notes on birds in Nepal were placed at Hume's disposal, eventually forming a very large portion of the completed volume of 'Nests and Eggs.' There were also Layard's and W. V. Legge's and Holdsworth's works on Ceylon and, finally, Stoliczka's and Scully's writings on the Palæarectic Himalayan regions and all the valuable works and writings of Dr. W. T. Blanford.

The first edition of Hume's 'Nests and Eggs' was, as he himself says, a compilation of existing scattered data plus his own vast knowledge of bird-life in India ; this edition, however, was only meant to form a basis for a second, which would be built up on a much more complete knowledge of nidification and in a quite different format. What was first and most urgently wanted, in Hume's opinion, was something to work on, something to show what little had already been discovered and recorded and what immense fields there were still to examine and work in.

Therefore in this preliminary work he often gives several descriptions of a bird's nest and eggs which are all practically the same and which would be really unnecessary when once sufficient information was available for one to generalize on the subject or when general knowledge on this point had been fairly stabilized. In his second edition, judging from the papers he left, as well as what he had already written and said, he evidently intended to deal with each species somewhat on the following plan.

First, he meant to give an account of each bird's habitat in a summarized form ; secondly, a general description of its breeding habits, its nest and eggs, and then such additional information as might be supplemental to this or which dealt with the unusual or abnormal.

To this end he had amassed an enormous amount of data furnished both by the correspondents already noted and by numerous others whose assistance he obtained later after the first edition had been issued. Unfortunately for the Indian ornithologist, and especially

for those who devoted themselves entirely to Oology, a great portion of the papers containing these data were stolen by an Indian servant and sold as waste paper. More unfortunately still, this theft was not discovered for some time after, when it was too late to make recovery possible, except to a very partial extent.

In 1887 Hume handed over to Oates the work of bringing out a new edition of his 'Rough Draft' or of his first edition of 'Nests and Eggs of Indian Birds.' The work was undertaken by Oates, who was then employed in writing the Bird volumes in the second edition of the 'Fauna of India' series, the classification adopted in these two works being the same and, of course, a great advance on that in the first edition. The first volume of Oates's edition of 'Nests and Eggs' was issued in 1889 and it was at once obvious that, since 1873, sixteen years had furnished an immense amount of information, the work of a number of good collectors and observers added to the many who had previously worked with Hume and whose work was now incorporated with theirs.

Among the most prominent of Hume's new correspondents were the following :—

In Darjiling and Sikkim generally Mandelli worked with keenness and great success, adding much to the knowledge of bird-life in that State, where Capt. Masson also worked; in Western India G. W. Vidal, Lieut. H. E. Barnes, Messrs. J. Davidson and H. Wenden discovered many new nests and eggs; in Sind, as well as in other parts, S. Doig did much good work; in Southern India Rhodes Morgan and J. Macpherson carried on the work, together with several of those who had filled so many pages in the first edition; in Eastern Bengal and Assam J. R. Cripps and James Inglis provided much new information, whilst Col. H. Godwin-Austen worked the hills and mountains of Assam; from the North-West Himalayas Col. Biddulph sent many notes; in Burma Col. C. T. Bingham and Col. R. G. Wardlaw Ramsay joined with Oates in his ornithological work, whilst many others from various parts of the Empire, such as Cleveland, G. Reid, C. W. Taylor and others, added valuable notes from time to time.

Undoubtedly, if Hume had himself edited the new edition, we should have had a far more systematic format, but Oates was neither an oologist nor an egg-collector, and such eggs as he did take were obtained with birds which he required as specimens;

he neither hunted for eggs nor did he employ others to collect eggs for him. If he shot birds which had nests and eggs at the time, he took the latter and made brief and often unsatisfactory notes of them. If his collectors happened to trap birds on their nests and eggs the latter were brought in to him with the birds. Oates, himself a lover of the forests and jungles, like Jerdon, knew his birds in life just as well as he knew their skins in museums, but he did not bother about that part of their life-history which related to nests and eggs. This is apparent in the second edition of Hume's work. Where Oates found among Hume's papers general summarized notes on a bird's breeding, these are given; on the other hand, where no such summaries were to be obtained ready-made for him, he did not attempt to summarize the information available to him in the various papers, and he therefore just includes the whole of the notes, some of which are often quite redundant and of no value. Thus in many cases in Oates's edition we find that Hume's summary is given of two or three nests; to this is added the description of these same nests by each of the finders and, in some cases, when two people have been present at the taking of a nest, he even gives both their descriptions, so that we thus have three descriptions of the same thing.

A considerable amount of information not available at the time the 'Rough Draft' was written is given in the second edition; in fact the nidification of 814 birds is given in this work as against 662 in the 'Rough Draft.' Unfortunately mistakes in identification in the latter, although known to be mistakes, are repeated in the new edition, sometimes without any warning that the records are wrong or doubtful.

Even admitting these faults of commission and omission, there is no doubt that Oates's work did give a great stimulus to field-ornithologists, who, after all, in ninety-nine cases in every hundred are egg-collectors first, oologists next and, finally, ornithologists. It once more placed before them in a fairly concise form the whole of the information available up to date on the nidification of Indian birds, helping to guide them in their field-work and to show what further information was still a desideratum. Before it was written we had an enthusiastic body of field-workers who were constantly searching for something new to themselves, yet quite possibly already well known to others, although nothing had ever been

published about it or, if published, was difficult to find. On the other hand many men kept to themselves valuable information which they believed to be common knowledge.

It is now over forty years since any book has been published solely on the nidification of Indian birds, dealing with the subject as a whole. At the same time there is a vast amount of information contained in such books as Harington's 'Birds of Burma,' Bates's 'Bird Life in India,' Fletcher and Inglis's 'Birds of an Indian Garden,' P. C. Law's 'Birds of Bengal' etc. In the second edition of the 'Fauna of India' series it is also true that I have dealt with nidification more fully than was the case in the first; these bulky eight volumes are, however, primarily meant for the scientific and field-workers on ornithology, and it was impossible to devote the space one would have desired to nidification. Other recent works on the birds of parts of India or on the common birds of India unfortunately add nothing to our knowledge of nidification, the only notes given being copied from the 'Fauna' or from the first and second editions of Hume's 'Nests and Eggs.'

It is in the pages of the 'Journal of the Bombay Natural History Society' that the general mass of more recent discoveries in the biology of birds has been published, and in this great journal there is hardly a single number which does not contain some article of value and of interest to both ornithologists and oologists, as well as to the mere bird-lover. Much information has been brought out also in 'The Ibis,' which is, of course, only available to members of the British Ornithologists' Union or to those within reach of the bigger libraries. Complete series of these journals are, however, available to but few people and, even when available, it is no light task to ascertain the exact whereabouts of any special article or to find out exactly how much is known about any particular bird's nest or eggs.

After the publication of the second edition of Hume's 'Nests and Eggs' there arose a great number of young men in addition to the collectors who had helped Hume, some of whom were still active in the field, every bit as keen and as observant as those who had preceded them.

Naturally the North-West, the Punjab and Kashmir had the largest number of workers, the last-named beautiful State being one which made men become naturalists and nature lovers and, because it was nearest to the other two provinces and the United

Provinces, it infected more men from these parts than those from others more distant.

Col. A. E. Ward is probably the senior living member of the workers in this field, while Col. R. H. Rattray came close in his steps, but they have been followed by a host of others, such as Whympers, whose field-work in Garwhal was really wonderful ; B. B. Osmaston, who has also given us much valuable information from Burma and who has told us more about bird-life in the Andamans than any other naturalist, living or dead ; his brother, A. E. Osmaston ; Messrs. P. Dodsworth, A. E. Jones and others who have worked systematically in the Simla and adjoining States ; Philip Mackinnon, Col. K. Buchanan, Col. H. R. Baker, Col. A. E. Wilson, Capt. Packard, Capt. R. S. P. Bates and many others who did much good work in their respective provinces and in many cases are continuing their good work elsewhere. In the South of India Col. R. Sparrow and Professor Burnett came to the fore, and J. Davidson and T. R. Bell continued their interest in Oology and contributed many articles full of information on Bombay and Sind birds. Sir Percy Cox was also one who started his Oology in Bombay and carried his hobby with him into Persia and Mesopotamia with valuable results.

In Travancore, in addition to the brothers Bourdillon, already mentioned in previous lists, J. Stewart carried out some extraordinary work and collected information on many birds hardly known at all before, especially among the *Raptors*. In the United Provinces oologists have been represented by F. Field, W. Jesse, E. P. Gill and again, of course, by S. L. Whympers ; Bengal and Behar have brought forward Chas. M. Inglis from whose pen we have notable papers on the birds of many districts and provinces, and now S. C. Law is still adding to our bird knowledge of even so well-known an area as the vicinity of Calcutta, in addition to other places further afield. Assam has produced H. A. Hole, H. Stevens and H. N. Coltart ; Sind found a successor to Doig in Harrington Bulkley, whilst now K. R. Eates is hard at work and has already found quite new things in the few years he has been at work. In Tibet we have had Col. F. M. Baily, Captains Steen, Kennedy and Macgregor, F. Ludlow and others. In Sikkim Stevens has done a great deal of excellent work, though still too much of it remains unrecorded and locked in his own brain. In Ceylon A. E. Butler was followed by numerous workers ; in the early 'nineties there were W. A. T. Kellow, Jenkinson and others ; then came W. E. Wait,

whose works are too well known to need comment, W. W. A. Phillips, T. E. Tunnard, G. Brown and Capt. Alford, the last of whom did further good work in Mesopotamia; on the extreme North-West frontier Col. Rattray, already mentioned, Capt. C. H. T. Whitehead, Col. Magrath, Col. H. H. Harington and others all added something to our records on nidification. After India we come to Burma, and this province, perhaps because so little was known about it in Hume's time, has given us a richer harvest of oologists than any other. Harington, of course, heads the list, but with him we have Messrs. J. C. Hopwood, J. M. D. Mackenzie, J. P. Cook, K. Macdonald, F. Grant, P. Wickham, J. Marlow, Judge Robinson and others. General R. M. Betham, in the course of his service, has covered many provinces and found something worth recording in each, but his great successes were in Quetta, where later his work was so well followed up by Major C. Williams. Outside our limits in Siam E. G. Herbert made fine collections and recorded much about many birds which interest us because they occur in Burma as well as in Siam.

Many names must have been omitted in the above list and there are also many ornithologists who have worked in India on the birds without taking much personal interest in eggs. Among these Dr. C. B. Ticehurst has published useful notes by Bell on the "Nidification of Birds in Sind," whilst H. Whistler, in his many catalogues of birds of various districts, has also occasionally given us valuable notes on nests and eggs.

Now, perhaps, I should explain how it is that I am writing the present work.

A little over fifty years ago, about three years after my arrival in India, it was my good fortune to be posted as Political Officer to the North Cachar Hills, probably the finest country in the Indian Empire for the young would-be sportsman and field-naturalist. This was, indeed, a golden opportunity for me, already mad on all forms of shooting and, in the opinion of many of my friends, madder still on eggs. Every year in North Cachar I came across something new, some nest or egg which had never been previously described and, during my fifteen years in that district, I had the luck to find nearly three hundred species of eggs which were at the time new to science. Unfortunately I was seldom able to ascertain what was new and what was not. Hume's 'Rough Notes' was then my *vade mecum* but, alas! it was constantly failing me and, even when

the first volume of the second edition appeared, I found it but little help to me in my special province, so that it became very soon my ambition some day to write yet a further volume on the 'Nidification of Indian Birds.' As I grew older I realized better the difficulties of what I wished to do, and now when, after fifty years' experience of Indian Oology, I undertake this work, I do so with far greater diffidence than I should have felt many years ago.

At first it seemed that another edition of Hume's work would be the best way of bringing information up to date but, as my own collections and my own field-knowledge grew, so also grew the impression that it would be best to start the work *de novo*, however much I might be indebted to Hume's great work for help and constant quotation.

My own collection has been formed by a very careful selection from over 200,000 eggs, seen either *in situ* or brought in together with bird and nest by my own trained collectors. To my personal collection has been added an immense amount of material given to me by nearly all those whose names have been mentioned in the last of the above lists. In many instances, about twenty-five to be exact, the complete collections of these gentlemen have passed into my hands, and from them innumerable novelties have been added to my own and, still more, series have been amplified and made more representative. Probably my collection, made up, as it is, by the efforts and work of so many oologists, is almost as complete as a collection got together in one man's life-time can hope to be.

Again, as a reason for starting a volume on Nidification afresh, it must be remembered that in Hume's and Oates's day no subspecies were recognized, at all events trinomially, though Hume well recognized, and often emphasized, the fact that many so-called species were but geographical races. In his great collection, which he donated to the British Museum, the eggs of all races are found under the one binomial unless they had already, though incorrectly, been given the status of species. To sort all these eggs into their proper positions would alone be a work of some years, and one to be undertaken only by the man who, some day, will rewrite the 'Catalogue of the Eggs in the British Museum.'

Under such circumstances this and the succeeding volumes will be based very largely on the collection now in my possession, embracing as it does so great a proportion of the eggs collected by others and to which reference will be made. This collection,

it may be noted, will soon be available for examination and reference in the Natural History Museum, South Kensington, which will probably, as each volume appears, take over the eggs to which it refers *en bloc*.

The classification adopted is that of the 'Fauna of India' and the nomenclature used in that work is only altered according to the corrections made in vols. vii and viii, or in those cases in which further corrections have been published since the issue of these volumes. The only reference given is to the second edition of the 'Fauna,' and no synonymy has been included. In the few instances in which I have adopted or refused to adopt names discovered, or given, later than those employed in the 'Fauna' I add a brief footnote to show where the origin of the name can be found or why I refuse to adopt it.

My readers will see that I have attempted to review the oology of each species as systematically as possible.

So far as the information at my disposal enables me to do so, I have adopted the following format in dealing with each bird. First of all I have tried to give the complete breeding area, so far as it is now known, but have not attempted to give the area in which non-breeding birds may be found or through which migratory species pass or remain in for the Winter. Next is given a general idea of the elevation and nature of the country in which nesting operations take place, and it is this portion of the work which may be found most wanting. I constantly find that collectors note down with the greatest detail a description of a nest and eggs and, generally, add the position it occupies in tree, bush, or other situation, but most omit all reference to the kind of country in which the nest is found. It may be plains, hills, or mountains; it may be in gardens, open country, bamboo-jungle, or deep forest, but so often, alas! no hint of this is given. A new-comer to India, therefore, who wants to find nests and eggs has not the slightest idea in what sort of place he is to search for the nests and eggs so elaborately described.

After a description has been given of the country in which the nest should be looked for, the season during which the bird breeds is dealt with as fully as possible.

Then follows, as a rule, a general description of the nest and details of the nesting-site, with additional information as to anything unusual in the nest itself or the site.

In many cases, however, our information is still incomplete and we have not sufficient data available to allow us to generalize. In those cases I give more fully such information as is available, even though it may entail some repetition.

Next I deal with the number of eggs which one may expect to find in a clutch.

Finally, the eggs themselves are described in detail and all the variations known to exist dealt with separately. The measurements are given in millimetres of as big a series as are available and, so far as possible, only of eggs the measurements of which have been checked by myself. The average measurements are followed by the maxima and minima.

There is one point—it may be important—to which I must refer. It will be noticed that I have in many cases altered the trivial names of our birds. Recently many writers have drawn attention to the fact that the trivial names of Indian birds often convey no descriptive meaning to the hearer either as regards the birds themselves or of the country they occupy. It is impossible, of course, to give any English equivalent for such names as *Sibia*, *Leiothrix* etc., and the only thing to do as regards these is to memorize them and use them until they become familiar. Long ago Harington dwelt on the fact that it was better to use Latin terms as trivial names rather than English trivial names which were misnomers. This reasoning I have accepted.

It will be noted that I have completely dropped the use of surnames of people as trivial names. It may be argued that to those who knew well, either personally or by reputation, the owners of the names in question, they should at once convey a knowledge of the geographical areas in which the bird so named is found. Even this, however, is not always the case. Birds are often named as a compliment to others who have worked on special groups, though the bird itself may only be found in an area never visited by the person after whom it is called. I have, therefore, eliminated these names altogether. In giving the bird a new trivial name I have tried to find some character in each species which differentiates it from other species of the same genera. This character I use throughout as the specific name, qualified by geographical additions to the names of the subspecies.

Thus the species *Stachyridopsis rufifrons* I call the Red-fronted Babbler, the red forehead being the specific character separating

it from its nearest ally, the Red-headed Babbler. Then its geographical subspecies I call the Burmese Red-fronted Babbler, instead of Harington's Babbler. In this way the trivial name at once conveys to the hearer its important specific character and the area where it is found.

I would also like, in this Introduction to a book on Oology, to give some sort of reply to those ardent protectionists who say that all egg-collecting is not only cruel but absolutely useless, that it can never be a science, and that all egg-collectors should be sentenced to penal servitude for life in a birdless, eggless country.

In the first place egg-collecting is not nearly so cruel as some protectionists quite honestly believe it to be. If fresh eggs are taken whilst the furore of reproduction is still the dominant factor in the physical condition of the bird laying them, she will at once use her energy, not in mourning the loss of those taken, but in producing others as soon as possible. *Birds certainly do suffer to some extent* when their eggs are taken but the suffering is very brief, and the feeling merges almost at once into the desire for procreation. Even those birds which display the greatest grief, if carefully watched, will be seen quietly feeding within a very short time, every sign of the emotion of sorrow completely gone. At all times during the breeding seasons birds are governed by some very definite physical condition which in turn induces an overwhelming desire, first to produce eggs, then to hatch the eggs and, finally, to feed the young. Any check in the second emotion reacts almost at once in reinforcing the first factor, whilst even in the early stages of the third condition the reaction to the first is also often very great and complete.

A few ornithologists, it is well known, still deery the work of oologists and join in the accusations of cruelty, in some cases even to the absurd extent that they will kill the parent bird, if they want its skin, off the very eggs which they say it is cruel of the egg-collector to take. In these instances the deeds of the accusers are far more than sufficient answer to their words.

On the other hand, most ornithologists now admit the utility of Oology, believing that any information on any matter connected with the biology, or life-history, of any bird must be of value and help to those who examine the dry skins, and there are some, even, who believe that the study of eggs may be a real help to the systematist. Admittedly one cannot, and does not, classify a bird

according to the eggs it lays, yet a knowledge of what kind of egg a bird does lay may often furnish a useful clue to the position it should occupy and among what other families, genera or species one should look for its nearest affinities.

Hartert, one of our greatest ornithologists, and a believer in biology and in the value of general field knowledge, once said : " Oologists may be counted on the fingers of two hands but egg collectors are beyond numbering." This, unfortunately, is undoubtedly true, but more real oologists are very badly wanted, and every egg-collector who starts with the idea of collecting eggs with a view to finding out something about them, or from them, is an oologist in embryo. To take an egg merely because it is one of the Creator's most beautiful works is cruel because it is useless, but to take an egg in the search for knowledge is permissible because the result may add something to the sum total of human knowledge.

The science of Oology may be said to be in its infancy still, and there is an abundance of work left for those who are willing to do it. Some of the simplest questions are unanswered, and many others remain doubtful to a less or greater extent. We do not even know beyond all argument how the pigmentation of an egg takes place, and our cleverest oologists are still disputing as to the place in which the egg receives its pigment before being expelled from the bird. Many other questions of both use and interest yet remain unsolved and ample work is left for several generations of oologists to come.

In India, fortunately, there is never any chance of the activities of the egg-collector endangering the existence of any species and, so long as he only takes eggs with some definite object in view, he has a right and sufficient answer to the ultra protectionist.

There are still a very great number of birds about whose nidification and life-history we know nothing, more especially in Burma, whilst of many others there are yet points of information incomplete, and of even the common birds, of which so many people *know* practically all there is to be known, there is nothing, or very little, *recorded* as to the type of country in which they breed. Above everything else, fuller information in regard to this is wanted, for the first question asked by every new-comer to India is, " Where am I to look for this bird in the breeding season ? "

Among other points of interest which still require to be worked out, and which can only be worked out by the field-naturalist, are those connected with the time taken in incubation, which

sexes incubate, which sexes take part in the construction of the nest and in the care and feeding of the young. Courtship displays are still but little known and, in some cases, are of importance as showing causes for patterns and coloration of plumage. Then it is useful to know to what extent courtship displays simulate offensive or defensive postures and actions. These are but a small portion of the secrets, the solution of which lies ready to the hands of our future workers, but they are perhaps sufficient to show how much remains to be done.

To those enthusiasts in Oology working in more favoured countries, with kindly climates, no dangerous wild beasts and no poisonous snakes, centipedes and scorpions, it is difficult to appreciate the difficulties under which men work in India. In many places, such as in Kashmir in the North, the Nilgiris in the South, the highest ranges of Assam and Mt. Victoria, in Burma, in the East etc., "bird's-nesting" is a delight in itself, in delightful surroundings—a fascinating hobby made yet more fascinating by the natural beauties in which one moves. There is, however, another side to the picture. Steamy, rain-sodden plains and low hills where malaria must almost certainly be the reward of those who hunt for the nests of the rare birds living in them. Weary hunts day after day in endless forest, grass or jungle, where a tiger or other dangerous animal is just as likely to be encountered as the bird one seeks. Then there are the exhausting journeys over sunburnt deserts and thirsty plains for those who would learn the secrets of our desert-breeding birds; or equally long and tiring journeys for those who try to find in the snow and ice of the lofty Himalayas some new oological bit of information.

Minor chances, some of which may mean death, are always present, such as the over-eager thrust of a hand into a hole presumed to contain a nest and eggs but actually holding a snake, resulting in a shock which may well damp a collector's enthusiasm, even if it has no worse effect.

In spite of all these adverse factors and of all that can be, and often is, said against it, I think I can say, after thirty years of egg-collecting in India, that "it is well worth while." The charms of the open-air work far outweigh the difficulties, inconveniences, or even the dangers which it may entail, whilst the thrill of finding something new almost equals the little throb of the heart which is felt, even by the most seasoned sportsman, when some dangerous

form of big game turns over, dead, almost at his feet. Since my time in India office work has become even more strenuous, and officials are more and more completely tied to their desks and to their never-ending reports, yet there are still some holidays, some free days which come to the hardest worker, and how can these be better spent than prowling, gun in hand, through the never-ending glories of an Indian forest or open woodland or, better still, the beautiful uplands of Kashmir and similar countries, learning the secrets of nature and avoiding vile man and all his evil civilization.

Finally, to those who accept my advice and intend to start on the road to becoming oologists rather than egg-collectors, may I say one more word. Method and thoroughness are two of the most important helps to attaining this end. First, no clutch of eggs should be taken of which the layer is uncertain ; secondly, every clutch of eggs which is taken must have the fullest data possible recorded, to accompany them into the cabinet. Date, place and description of nest are the three obvious points which every collector remembers to note but, equally important, are those relating to site of nest, description and elevation of country and anything else which may elucidate in any way the breeding habits of the bird which laid them.

E. C. STUART BAKER.

THE NIDIFICATION OF THE BIRDS OF THE INDIAN EMPIRE.

Order **PASSERES.**

Family **CORVIDÆ.**

Corvus corax.

THE RAVEN.

(1) **Corvus corax laurencei** Hume.

THE PUNJAB RAVEN.

Corvus corax laurencei, Fauna B. I., Birds, 2nd ed. vol. i, p. 21.

Within Indian limits the Punjab Raven breeds from South and Western Sind as far East as the United Provinces. In both the Punjab and North-West Frontier Province it is a common bird, but is less so to the East of the Jumna. It occurs regularly in many parts of Upper Sind but much more rarely and, apparently, only sporadically in Lower Sind. According to Mr. K. Eates the great majority of these Ravens in Upper Sind are migrants coming, in considerable numbers in September and October and leaving again in May after breeding. To the South it has been obtained breeding as far as Sambhur. From the North-West Frontier Province Hume remarked that it seemed to be absent from the Dera Ghazi Khan district, but Capt. C. R. S. Pitman and Col. R. H. Rattray both found it very common at Dera Ismail Khan, where they took many nests in January and February.

The Punjab Raven commences to build in December and January, but few eggs will be found until the second or third week of the latter month, whilst probably more eggs are laid in

February than in any other month. Hume took five slightly incubated eggs as early as the 19th December but, on the other hand, Major Lindsay Smith took four quite fresh eggs as late as the 28th March, 1911, at Lyallpur.

Normally this Raven makes its nests in trees, sometimes on quite small ones, at other times on trees of some height. The body of the nest is made of stout sticks, well interlaced and compactly put together, being generally finished off and lined with smaller sticks and twigs. Often the nests are lined with wool and less often with hair and other miscellaneous scraps such as pieces of cloth, skin and other odd fragments picked up near villages. The nest, as Hume records, is very like a large nest of a Rook but, unlike that bird's, it is always solitary and it is seldom that two nests will be found within a few hundred yards of each other. If the bird starts building early they are often very slow in their work, whether of repairing their old nests or in building a new one but, if work is commenced late a new nest is built in little over a week or ten days, whilst the bringing up to date of a previously occupied nest may only take a day or two. Some nests are occupied for many years in succession, not being deserted until they are blown down or otherwise destroyed, when another is built in the same tree or in one close by. Sometimes the nests are built on cliffs. Mr. B. B. Osmaston says that round about Rawal Pindi the Punjab Raven nearly always builds on the cliffs; Mr. A. E. Jones found nests on the high cliff banks of the Haro River near Campbellpur; Mr. P. Dodsworth also obtained one such nest near Chuakhana in the Punjab. Hume's description of his first nest would suffice for almost any other of those built on trees. He writes:—

“At Hansie, in Skinner's Beerh, Dec. 19th, 1867, we found our first Raven's nest. It was in a solitary Keekur tree, which originally of no great size had had all but two upright branches lopped away. Between these two upright branches was a large compact nest fully 10 inches deep and 18 inches in diameter, and not more than 20 feet from the ground. It contained five slightly incubated eggs, which the old bird evinced the greatest objection to part with, not only flying at the head of the man who removed them, but some little time after they had been removed similarly attacking the man who ascended the tree to look at the nest. After the eggs were gone, they sat themselves on a small branch above the nest, side by side, croaking most ominously, and shaking their heads at each other in the most amusing manner, every now and then alternately descending to the nest and scrutinizing every portion of the cavity with their heads on one side as if to make sure the eggs were really gone.”

Jones described a cliff nest as follows:—“These six eggs were from a nest composed of sticks and lined with hair, etc., which was built on a ledge of a clay cliff on the left bank of the River Haro,

near Campbellpur, in the Western Punjab. Both birds were very demonstrative whilst the nest was being taken, though they did not actually attack the man. This was fortunate, for the nest could only be reached with the aid of a rope, being about 20 feet below the top and about 50 feet from the base of the cliff. These six eggs, which were taken on the 25th February, 1919, were slightly incubated." Nests are often built on quite small trees, sometimes not more than about 15 feet from the ground, whilst one nest has been recorded as placed in a stunted *Mimosa* only 7 feet from it. The tree selected may be quite a solitary one standing in cultivation or waste ground, one of an avenue beside a road, one in small clumps of trees near villages or, rarely, one in an orchard of Mango-trees.

The eggs number four to six, most often, perhaps, five, and are quite typical of the Crow tribe. The ground-colour varies very greatly but is most often a pale blue or greenish blue; at other times it may be a pale olive or pale stone colour, nearly always, however, with a greenish tinge. The markings consist of blotches, spots and specks of various shades of deep brown, with others almost black and others again of olive-brown. They vary considerably in size and distribution but, normally, they are moderately large and are scattered fairly thickly over the whole surface, though more numerous over the larger end. A few eggs have much of the smaller end almost devoid of markings, whilst those at the larger end are more sparse than usual and bigger and bolder in character, such eggs being particularly handsome. Occasionally the markings are reduced to tiny specks and spots scattered profusely over the whole egg and giving a very dull appearance to it. The secondary, or underlying, markings vary in size and distribution much as do the primary ones but they are seldom sufficiently numerous to dominate the general tint of the egg. In colour they range from the palest lavender or neutral tint to a deep inky grey. In shape the eggs are rather long ovals, though they naturally differ considerably; short stumpy eggs are, however, rare in this subspecies of Raven, whilst long pointed eggs are comparatively common. The general impression given by a series of these eggs is that of green in colour and a rather elegant long oval in shape. The surface is usually glossless but some eggs have a slight gloss, especially those which are less pigmented than normal. The texture is close and hard but the shell rather thin and brittle for so large an egg, a feature which seems to be characteristic of the eggs of this family.

One hundred eggs measured by myself average 50.7×33.6 mm : maxima 59.6×34.6 and 51.9×36.2 mm. ; minima 41.9×33.0 and 47.5×31.0 mm.

The period of incubation is said to be only 17 or 18 days, though the typical form of the Raven is said to take from 19 to 21 days to hatch its young, possibly due to development not proceeding so fast in a cold as in a tropical climate.

(2) *Corvus corax tibetanus* Hodgson.

THE TIBET RAVEN.

Corvus corax tibetanus, Fauna B. I., Birds, 2nd ed. vol. i, p. 23.

This Raven breeds in large numbers throughout Tibet at elevations up to at least 13,000 feet and probably at even greater heights. It extends in lessening numbers into Sikkim, the Bhutan Hills and West into Ladak and Baltistan, though Mr. F. Ludlow says that it does not extend into Kashmir proper. This writer gives the following interesting account of its breeding in Tibet :—

“ ‘Ngakpas,’ Practisers of the Black Art in Tibet, one of whose duties is to keep hail off the crops in summer, make use of the Ravens’ eggs in the concoction of their medicines. These birds are very early breeders. Building commences about the end of January, and eggs may be taken in February and March. The site chosen for the nest is generally a ledge or hole in a precipitous cliff. Occasionally it will build in a large Poplar-tree, and sometimes in Tibetan houses or holes in ruined buildings, or in a deserted Kite’s nest ; but I can find nothing in my notes in support of the statement made in vol. i of the new edition of the ‘ Fauna of British India ’ that these birds breed in Willows and thorn-trees. The nest is the usual structure of sticks lined with wool and hair. In many cases the same site is used year after year. Eggs vary from three to six. The ground-colour is a greenish-blue which is spotted or deeply blotched with dark brown. The average of fourteen is 51.75×35.5 mm. A very large percentage of the birds round Gyantse failed to breed each year.”

The nests referred to above as being taken in willows and thorn-trees were obtained by Messrs. Steen, Kennedy and Macdonald and three clutches which eventually came into my hands were taken, two from what were described as “ thorn-trees ” and one from a Pollard-willow. All my other clutches were said to have been from nests on cliffs. Capt. Kennedy described the eggs as most difficult to obtain when built on cliffs owing to the deep snow, the difficult position in which they were generally built and the friable nature of the cliff itself.

In Sikkim Mandelli’s collectors obtained a clutch of four eggs of this Raven.

The Tibet Raven lays from the beginning of February to the end of March, though I have two sets of eggs taken in April, both probably second layings of birds which had had their first nests destroyed or the eggs stolen.

The eggs differ as a series from those of the Punjab Raven in being duller in colour and rather broader in proportion to their length. Forty-two eggs, including Ludlow’s and Hume’s, average 51.61×35.2 mm. : maxima 58.4×40.3 mm. ; minima 45.9×33.2 and 48.0×32.1 mm.

(3) **Corvus corax ruficollis** Lesson.

THE BROWN-NECKED RAVEN.

Corvus corax ruficollis, Fauna B. I., Birds, 2nd ed. vol. i, p. 23.

The Brown-necked Raven only breeds within our limits in some of the Sind Hills and in Baluchistan, laying, so far as our very scanty information goes, in January with the exception of one single record for March, when a clutch of four eggs was taken by Mr. A. F. Gonsalves in the hills on the Sind-Baluchistan frontier due East of Sukkur. Clutches of eggs taken by Luri Khan and by Major C. G. Nurse in the Pabb Hills were both found in January. In Palestine Col. R. Meinertzhagen took many nests in March, whilst Mr. H. L. Powell found them breeding during this month near Aden. Most nests undoubtedly are placed on ledges on the steep, high banks of rivers or on ledges of mountain cliffs but, occasionally, they make their nests on trees. Major Nurse describes his nest as having been built "on a branching palm 16 feet from the ground and only obtained with the greatest difficulty, the branch being so thin." Mr. Gonsalves' nest was "of the usual corvine type, in a *Dalbergia* Sissoo-tree about 10' high." In Persia Mr. A. J. Currie found them breeding both on the high river banks and on trees but generally the former.

The nest is like that of any other Raven and is often occupied year after year. The eggs vary from three to six, the smaller clutches apparently full in number, as in some cases the eggs were incubated. In colour they are not distinguishable from those of the Punjab race but their small size renders them easily to be separated from those of any other Raven. Forty-four eggs average 45.0×30.9 mm. : maxima 51.2×34.3 mm. ; minima 40.5×30.0 and 44.0×29.0 mm.

The caw or croak of this Raven when disturbed at the nest is said to be much less deep and sonorous than that of the Punjab Raven.

Corvus corone.

THE CARRION-CROW.

(4) **Corvus corone orientalis** Eversm.

THE EASTERN CARRION-CROW.

Corvus corone orientalis, Fauna B. I., Birds, 2nd ed. vol. i, p. 24.

The Eastern Carrion-Crow breeds in Siberia from about the longitude of the River Yenesei to Japan and thence south through Central Asia to Afghanistan, Kashmir, Ladak, Tibet and the mountains of Northern China. As regards Kashmir the only authentic

record up to the time of the second edition of Hume's 'Nests and Eggs' (1889) was that of Brooks, who took eggs, securing the parent bird, from a nest obtained on the 30th May at Sonamurg. Since then a great many nests supposed to be that of the Jungle-Crow (*Corvus leuallanti intermedius*) have been taken and recorded as such. As, however, this Crow does occur freely in Southern Kashmir, whilst the Carrion-Crow is equally numerous in Ladak and in some parts of Kashmir proper, it is best to ignore all records in which the birds themselves have not been obtained and identified. The first to take a series of the eggs of the Carrion-Crow within our limits was Osmaston who, in 1923, took many nests and eggs of a Crow which on examination proved to be of this species. Most of his nests were taken in Ladak, at elevations between 10,000 and 12,000 feet, built on Poplar, Willow and other trees at no great height, generally 15 to 20 feet, from the ground. The nests he describes as made of sticks with copious linings of wool and hair. In March 1930 Mr. F. Ludlow took a further fine series of this Crow's eggs, together with some of the parent birds, in the country around the Maralbastu-Aksu Road. Here the birds were building in the "Togbrak" or desert Poplar. On the extreme western frontier Whitehead found them breeding in the Upper Kurram Valley and writes: "On the Upper Kurram Valley it breeds freely in April from 5,000 feet upwards. The favourite nesting site is undoubtedly a Chenar-tree (Plane) near some village, where the bird can find ample food for itself and family by scavenging. The nest is just like the Common Carrion-Crow's nest, an untidy affair of sticks and twigs, lined with wool, hair, or any rubbish it may pilfer from the village." I have also had its eggs sent me from Tibet with the following note: "I send you the head and wing of a Crow. The nest was built in a thick thorn bush only about 5 feet from the ground, made of sticks, twigs and grass lined with finer twigs and wool. The birds breed so early that I find it difficult to get their nests. This was probably a second brooding, as most birds have laid their eggs in early April, beginning to breed early in March." Although one would infer from this note that the birds are common in Tibet, Ludlow says that this is not the case, and certainly I never again had any more eggs sent to me. The usual number of eggs in a full clutch is four or five within our geographical limits, though three only may sometimes be incubated. In Krasnoyarsk and Yeneseik, however, Smirnov found five or six to be the normal clutch.

The eggs are typical Crows' eggs, giving the impression of dark green, heavily blotched. The ground-colour may be anything from pale olive-stone, olive-grey or dull olive-green to a clear blue-green or olive-blue. The markings consist of numerous blotches and spots of dark brown, reddish-brown or blackish-brown with others underlying of grey and neutral tint. Sometimes the markings

in one or more eggs of a clutch are longitudinal in character, the others being quite normal. Taking them as a whole they are handsome eggs and one type, which is not uncommon, has the whole surface so completely covered with very small dark green blotches and stippling that they look an almost uniform dark sage-green. Sixty eggs average 43.6×30.9 mm: maxima 49.0×29.0 and 44.0×32.6 mm.; minima 36.2×28.0 mm.

Corvus levaillanti*.

THE JUNGLE-CROW.

(5) Corvus levaillanti levaillanti Lesson.

THE NORTHERN INDIAN JUNGLE-CROW.

Corvus coronoides levaillanti, Fauna B. I., Birds, 2nd ed. vol. i, p. 26.
Corvus levaillanti levaillanti, ibid. vol. vii, p. 593.

The breeding habits of all our races of Jungle-Crow vary but little except in their times of breeding and a few other minor points and, for the most part, a description of the habits of one race would suffice for all. The Northern Indian race breeds during December and January in Bengal and I have myself taken eggs as early as the 27th November in Eastern Bengal. In Behar a few birds breed as early as the second week in January, but over the rest of its range across India as far West as the United Provinces and as far South as the Central Provinces the normal breeding season seems to be late March to early May, most eggs being laid in April before the 20th of that month. Unlike the House-Crow, this bird seldom breeds actually within the limits of towns or large villages. At the same time it seems to prefer the vicinity of houses to uninhabited areas. Its favourite sites for nests are undoubtedly Mango orchards, clumps of trees on the outskirts of villages and single trees dotted about in cultivation. Mango and Tamarinds are very favourite trees but I have also taken them from Coconut-palms, bamboo-clumps, Mimosas and other similar trees, not 20 feet from the ground, and from Casuarinas 60 feet or more above it. They have also been recorded from Babool-trees, 10 feet up, but as a rule they like to be at least 25 feet high or more on a biggish tree.

The nest is nearly always made of sticks, big and small, lined with any kind of fibrous roots, palm-fibre from the bark, or with hair.

* Messrs. Kinnear and Whistler have revived *macrorhynchus* as the specific name for our Indian Jungle-Crows. This may be quite correct, but our Northern Indian bird cannot be—and is certainly not—the same as the Javan race. The name *levaillanti* must therefore remain. The question of species and subspecies of this bird cannot be decided upon an examination of Indian and Burmese birds only.

Hume records taking a hair lining from a Jungle-Crow's nest which weighed no less than a pound, while there is also a record of a human hair lining weighing 6 ounces. The nest is generally rather bulky and untidy, anything from 12 to 20 inches across, 3 to 6 deep and with a depression for the eggs measuring about 8 inches across by 2 to 4 inches deep. In one part of Eastern Bengal, where these birds were very numerous, I took many nests from the clumps of trees on the Golf-course, often having to examine nests to recover golf-balls which the Crows carried off. Here the nests were sometimes much smaller and neater than usual, more like the nests of its cousin, the Himalayan race. Much moss was incorporated in the bodies of these nests, whilst the lining was of softer hair and fine roots, so that the whole structure was very compact and neat. The parent birds sit very close, especially when the eggs are at all incubated, and will often continue to sit until the taker of the nest is within a few feet of it. One pair of the Burmese form of this Crow, which is found in Dacca, had their nest in a curious position, a small bunch of *Ficus* growing on the roof of a broken-down mausoleum. When the nest was found the two birds sat, the one on the nest and the other within a foot or so of it, until the former was almost pushed off. When the eggs were taken the bird several times swooped down within a few inches of the boy's head but never struck him. On other occasions I have seen feeble swoops made at an intending robber but I have never seen so determined and long-drawn-out an attack as that made by this pair. No attempt seems to be made at concealment, though in trees with thick foliage the nests may not be very conspicuous. Even in such cases, however, the birds always give away the site of their nest by their anxiety whenever anyone passes the tree in which it is built.

The eggs number three to five and, though six have been recorded, this number must be very rare. Cases in which two eggs have been reported as incubated are probably incomplete clutches, part of which have been stolen by the vermin, of which so many kinds steal birds-eggs in India.

It is very interesting to note that the eggs of the various races of Jungle-Crow are very distinctive, perhaps even more so than the birds themselves. Of course eggs of all the races overlap and it would be quite impossible to identify any single egg or even clutch of eggs but, when series are available for examination, the differentiation is very easily seen. The present race lays eggs which are intermediate in size and in depth of colour between the Southern and Himalayan subspecies. The eggs are, like all Crows' eggs, green. That is to say, the ground-colour is normally a pale olive- or blue-green, more rarely almost blue, with numerous blotches and spots of umber-brown and blackish-brown, distributed freely over the whole surface but nearly always more numerous at the

larger end. Occasionally eggs may be seen with a slightly yellowish tinge in the ground-colour. Sparsely marked clutches are not rare and I have one clutch of four in my collection almost unmarked pale blue, whilst another has merely a few large blotches of dull brown and brownish neutral tint. The underlying markings are almost always few in number and very inconspicuous but in a few eggs they become well defined, rather large blotches of deep lavender-grey.

One hundred eggs average 39.6×28.9 mm. : maxima 45.2×29.5 and 45.2×35.2 mm. ; minima 36.9×28.2 and 38.9×26.3 mm. In shape they are generally long pointed ovals, but long-shaped eggs with obtuse smaller ends are not exceptional, though broad stumpy eggs are very rare. The texture is fairly fine and close but there is little or no gloss and the eggs are brittle for their size.

As a species the Jungle-Crow lays eggs which differ from those of the Carrion-Crow in having fewer longitudinal markings.

(6) *Corvus leuallanti culminatus* Sykes.

THE SOUTHERN JUNGLE-CROW.

Corvus coronoides culminatus, Fauna B. I., Birds, 2nd ed. vol. i, p. 28.

Corvus leuallanti culminatus, ibid. vol. vii, p. 593.

The breeding range of this race may be taken roughly as Ceylon and Southern India South of a line drawn from the Madras Presidency, say from Masulipatam, through the Deccan to Bombay. On the border line, as is the case with all geographical races, the birds are intermediate but, South of this line, the decrease in the size of the bird is quite pronounced.

The breeding season of the Jungle-Crow throughout Southern India seems to be March, April and May. Major C. E. Williams took for me a fine series of their eggs between the 9th of March and the 3rd of May ; Bourdillon and others took eggs from the 27th February to the 20th May in Travancore. Davison and Miss Cockburn give April and May as the breeding months in the Nilgiris, though Darling took a clutch of six eggs at Ooty as early as the 12th February. In the South of the Bombay Presidency most eggs are laid in April and March. In Ceylon the principal breeding months, according to Wait, are June and August, but Layard says that it lays during January and February. Probably there are two seasons, as W. Jenkins also obtained hard-set eggs in the latter month.

The nest is like that of the preceding race and is placed in similar positions in trees in well-wooded open land, in cultivation, waste ground or round villages. In Ceylon palm-trees form a favourite site, the nests being built in the crowns and, in these, the lining is composed entirely of Coconut-fibre.

In spite of Darling's clutch of six eggs, the normal clutch of eggs of this race is smaller than in any of the others, three only being laid quite as often as four. They resemble those of the Northern bird already described but, as a series, are smaller and perhaps less long in shape and decidedly darker and duller in colour, especially those from Ceylon and Travancore. Sixty eggs average 38.0×28.1 mm.: maxima 47.0×29.8 and 42.0×30.2 mm.; minima 36.3×29.0 and 42.4×26.3 mm.

(7) ***Corvus levaillanti intermedius* Adams.**

THE HIMALAYAN JUNGLE-CROW.

Corvus coronoides intermedius, Fauna B. I., Birds, 2nd ed. vol. i, p. 28.

Corvus levaillanti intermedius, *ibid* vol. vii, p. 593.

The Himalayan Jungle-Crow is much more a bird of the true forest than either of the two preceding races, though odd pairs may often be found in the vicinity of villages surrounded by forest. It breeds right along the Himalayas from Afghanistan to Western Assam, North of the Brahmapootra, being common between 2,000 and 9,000 feet and, occurring in smaller numbers, at least 1,000 feet higher and, on the other hand, into the foot-hills. Here, however, the birds are intermediate between the Himalayan and Northern Indian more typical specimens. In Sikkim Meinertzhagen met with it at 13,000 feet on the "Tibetan plateau" and records it as occurring, though by no means common, in Baltistan up to 12,000 feet, whilst it is also common throughout the whole of Kashmir proper. Almost any tree in either evergreen or deciduous forest may be selected for the nest to be built in. Round about Simla and in the Garhwal Hills the Deodar seems to be the favourite. In other places Pine trees are often used but any tree big enough will suffice, though this Crow seldom places its nest low down in a small tree as the Plains birds so often do. The breeding season throughout its range seems to be April and May, whilst a fair number of eggs are laid in March.

The eggs differ from those of the two races already described not only in being decidedly bigger but in being much more richly coloured and uniformly rather darker, yet not so dark as those of the next race, *andamanensis*, or of the Malayan form *macrorhynchus*. The full clutch of eggs of these Northern birds runs larger than those of the more Southern forms and six is by no means an uncommon number, though most often five only are laid.

One hundred and twenty eggs average 44.8×31.3 mm.: maxima 47.5×31.0 and 45.0×33.0 mm.; minima 40.4×30.4 and 43.2×28.2 mm. An abnormally long narrow egg measures 48.2×28.2 mm.

(8) *Corvus levallanti andamanensis* Tytler.

THE BURMESE JUNGLE-CROW.

Corvus coronoides andamanensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 29.
Corvus levallanti andamanensis, ibid. vol. vii, p. 593.

The Burmese Jungle-Crow breeds from Eastern and Southern Assam, Dacca and Mymensingh in Eastern Bengal through the whole of Burma to the North of Tenasserim. In the Southern part of peninsular Burma and Siam the birds approach the Malayan form *C. m. macrorhynchus* and are, perhaps, better relegated to that species. In Assam and Upper Burma it is entirely a jungle-bird, being found in dense virgin forest many miles from human habitation. Here, where scavenging is impossible and food therefore much harder to obtain, each pair of breeding birds has a very large breeding territory, extending often to more than a mile square, which it jealously guards and into which it allows no other of its own species to intrude. In Eastern Bengal it breeds everywhere where there are large trees in ample supply, while in Dacca its nest is sometimes built actually in the streets of the city, a habit I have seen in no other town or large village. Here the birds lived as scavengers pure and simple, food was abundant and territory of no importance, so that one often saw several nests built on one and the same clump of trees. Thus on the combined Race-course and Golf-links outside Dacca town many pairs of birds nested annually in the clumps of trees growing round the mausoleums dotted about them. In Lower Burma again these Crows, though not found actually in the villages themselves, haunt the open well-wooded country all round them and are seldom, if ever, found in deep forest.

The breeding season in Assam is April and May but in Eastern Bengal the bird has two quite definite seasons. Many breed in December and January, with a few individuals extending their laying into early February. Then in May there is another, but smaller, burst of breeding. It is curious to note that the common House-Crow has two similar periods for nesting in these districts and that during both periods both species of Crow are regularly cuckolded by the Koel, who has also adopted the two same seasons for laying its eggs. In Lower Burma and Siam the local Jungle-Crows breed in January and February. In most of the areas in which it breeds the nest of this Crow is just a replica of that of the Northern Indian bird but is neater and more compact, leaves and roots forming an important part of its material, whilst jute-fibre is the most usual—as it is the most easily obtained material for lining. In North Cachar, however, and often on the adjoining Khasia Hills, the nest is made almost entirely of green moss, mixed with roots, leaves and a few supple twigs, so that the whole forms a really beautiful though massive cup, so well and neatly put

together that it seems incredible that it is Crows' work. One such nest taken and measured by myself was 7 inches in diameter by 4 inches deep, with a cup for the eggs 6 inches across at the top and $2\frac{1}{2}$ inches deep in the centre.

This Jungle-Crow prefers large trees in which to build and nests are more often above, than below, 30 feet, whilst those birds which breed in forests often choose sites at the tops of lofty trees which are practically unclimbable. In the Khasia Hills they nearly always select the tallest pine of that particular patch of forest and make their nests at any height between 20 and 50 feet from the ground.

The eggs differ from all those already described in being much darker when examined as a series and they are, perhaps, as a whole rather broader. One hundred and twenty eggs average 44.2×31.0 mm. : maxima 49.1×29.1 and 45.2×35.8 mm. ; minima 36.7×28.0 and 38.0×25.5 mm.

Incubation apparently takes 17 days. A nest containing five eggs, three of this Crow's and two of the Koel, had the first egg of the former hatched on the 17th January, having been laid on the 31st December or 1st January ; the second egg hatched on the 18th January ; but when the nest was visited on the 19th January it contained only one young Koel. A second nest in Dacca, found with four fresh eggs on the 12th January, contained five young birds, just hatched, on the 30th of the same month.

A very curious clutch containing one brilliantly erythristic egg was taken by Mr. Anderson at Haddo in the Andamans. This red egg was given to Mr. Hopwood, and among Mr. J. M. D. Mackenzie's eggs I found two normal eggs of the same date and locality which may possibly be of this clutch. Owing to Mr. Anderson's death it was impossible to obtain further details.

(8a) *Corvus macrorhynchus macrorhynchus* Wagler.

THE MALAYAN JUNGLE-CROW.

(Fauna B. I., Birds, 2nd ed. Not included.)

The Malayan Jungle-Crow, or Southern Jungle-Crow, as Robinson calls it, breeds within our limits only in the South of Tenasserim, whilst even here the form is somewhat intermediate between true *macrorhynchus* and the more Northern form *andamanensis*. There is nothing on record about its breeding in Tenasserim, though both J. M. D. Mackenzie and Cyril Hopwood met with it. In that Province, as in the Malay States, it is found plentifully in open country, so long as it is well wooded, all round villages and towns, and is not a bird of dense forests like its Northern cousin. Mr. E. G. Herbert collected a very fine series of eggs of this Crow in Siam

which he very kindly gave me with the rest of his collection. The breeding habits he describes in the Journal of the Siam Natural History Society (vol. vi, p. 83, 1923) as follows:—

“The commonest Crow in Bangkok. They nest more or less in straggling colonies, either on the outskirts of a town or in and around the villages, and I have only found their nests in the neighbourhood of human habitations. The nesting season is January and February, though I have had a clutch of five fresh eggs as early as December the 23rd and, occasionally, clutches of fresh eggs may be taken in the beginning of March, but these are probably due to the birds being disturbed in their earlier nesting efforts.

“The nest is a large structure of sticks and twigs, too well known to require much description, but the materials should be noted. It is lined chiefly with fibre, though roots, scraps of rubbish and hair of various kinds are also included, but warm material of the nature of vegetable down is not. The favourite site is a forked branch near the top of a Mango or Tamarind tree, though Popul trees and sometimes Coconut palms are used.”

In 1916–18 Sir W. F. M. Williamson collected a further series of their eggs near Bangkok, all in January and February, and his description of their nidification endorses that of Mr. Herbert. The full clutch of eggs numbers from four to six, showing that this bird is an interesting exception to the general rule that Southern forms lay smaller clutches of eggs than their Northern relations. The eggs at once strike one on account of their very deep colour, some eggs being almost a blackish-green and others having a distinct brownish tinge. Most eggs have the ground-colour slightly darker than it is in those of other races, but the darkness is due principally to the depth of colour and denseness of the distribution of the blotches. In some eggs the ground-colour is completely covered and in but few does it show up at all boldly.

One hundred eggs average 43.9×30.2 mm.: maxima 48.0×30.3 and 45.6×33.0 mm.; minima 41.0×29.9 and 43.2×28.1 mm.

It is probable that in this species both parents took a part in incubation. Certainly they do so far as the Burmese bird is concerned, for I have frequently watched them change over in the early mornings and late evenings in nests built in Mango trees just in front of my window. During the heat of the day both birds leave the eggs uncovered, as, indeed, is the custom with the great majority of Passerine birds in India except in the hottest and the coldest parts. In the former they require shade to prevent their being cooked and spoilt and in the latter regions it is too cold as a rule to risk leaving them and their getting chilled.

Corvus frugilegus.**THE ROOK.****(9) Corvus frugilegus tschusii Hartert.****THE EASTERN ROOK.**

Corvus frugilegus tschusii, Fauna B. I., Birds, 2nd ed. vol. i, p. 30.

The Eastern Rook breeds in Persia, Turkestan and Siberia. Ludlow found colonies breeding near the Aksu road in North-East Turkestan and a native collector of Col. A. E. Ward took a single clutch of the eggs in Ladak, where, however, Meinertzhagen did not meet with it. This last-mentioned clutch was taken by Jammatt Oolah for Col. Ward and two birds were shot from the small colony and sent to him for identification; they were then forwarded to me to view and return and are now, I believe, in Col. Ward's own collection. The eggs are no doubt quite correctly identified. They were taken on the 27th April from a small colony of about fifteen pairs which were nesting on a number of quite small trees growing at an elevation of about 10,000 feet.

Two rookeries found by Mr. F. Ludlow in Turkestan, one on the right bank of the Agiass River at its junction with the Tekkes River, on the 14th May, and the other on the Shotta-Ili road, three miles from Gillam, contained 500 and 1,500 nests respectively. In the first the nests were all built on small trees and bushes, whilst in the second they were built in low buck-thorn and Willow bushes. The Agiass colony was on the bank of the river but the second colony was in a small island formed by two branches of the Tekkes River. Most of the nests contained three eggs only but two of those on the larger rookery each contained four.

The eggs are indistinguishable from those of the European Rook. The ground-colour in all is a light green, brighter in some, slightly olive in others and more brownish in one clutch of three. The markings consist of fairly large blotches of dark umber and blackish-brown, numerous everywhere but less so at the smaller end. In one or two clutches the markings are more sparse and the ground-colour therefore shows up more boldly. In one clutch only the marks form caps, distinct in one egg, ill-defined in the other two. The secondary blotches of grey or neutral tint are few and inconspicuous.

Fifty eggs average 40.9×28.2 mm.: maxima 45.0×29.0 mm. and 42.2×30.1 mm.; minima 34.0×26.2 and 34.1×25.2 mm. The minima are almost abnormal and the next smallest eggs are 38.1×29.5 and 38.7×27.0 mm.

Corvus cornix.

THE HOODED CROW.

(10) **Corvus cornix sharpii** Oates.

THE EASTERN HOODED CROW.

Corvus cornix sharpii, Fauna B. I., Birds, 2nd ed. vol. i, p. 32.

This Crow has not yet been found breeding within our limits but fine series of their eggs have been taken in Persia by Messrs. A. J. Currie and F. G. Petherick. The former collected mostly round Kerman and Sheraz, the latter round Yazd in Central Persia.

A note from Mr. A. J. Currie reads: "Usual stick-nest lined with roots and in one case with wool. In preference to others the Hooded Crow selects an evergreen, in Persia usually a Cypress, in which to build its nest, which it commences in March, though eggs are not usually found until April."

Mr. Petherick records: "This crow is a scavenger, it also robs other birds' nests and eats the eggs and young, feeds on any carcase, animal or human, and is found in large numbers in Parsi burial grounds. When there is no flesh obtainable by theft or scavenging it feeds on grain or mulberries. The nest, which is always placed in a green tree, is very bulky and is composed of sticks, roots, dried grass, pieces of rag etc. and is lined with roots, dried grass, wool, hair and rags. It is very sociable in its habits and I have found three nests in the same tree. It lays four, five or six eggs, generally five and but seldom six, commencing to lay at the end of March and continuing up to the end of May. With us it breeds from 2,000 to 7,000 feet."

The description given for the eggs of the Carrion-Crow would stand for the eggs of this bird also but they are as a series smaller, not quite so long and decidedly less broad. The average of 100 eggs is 43.1×28.5 mm.: maxima 49.3×26.5 and 43.8×30.6 mm.; minima 37.5×27.0 and 49.3×26.5 mm.

Corvus splendens.

THE HOUSE-CROW.

(11) **Corvus splendens splendens** Vieill.

THE COMMON INDIAN HOUSE-CROW.

Corvus splendens splendens, Fauna B. I., Birds, 2nd ed. vol. i, p. 33.

The breeding range of this race of House-Crow may be said to be all India except Sind, the North-West Province, Kashmir proper and possibly Ladak. It is the form found in Assam, Manipur,

Lushai Hills, Chin Hills and Arrakan. In the Punjab the two forms meet and birds obtained by Mr. H. Whistler at Jhang are said to be typical *splendens*. The breeding season of the Common House-Crow varies very greatly and, in some areas at all events, they have two breeding seasons. In the two seasons I believe there are two sets of birds breeding and not the same lot of birds breeding twice and rearing two broods, for nests which are used annually are never used twice in the same year. Over Eastern Bengal, Behar and Arrakan the normal breeding season is March and April but in Dacca and Mymensingh there are two well-defined seasons: December, January and February in the Winter and April, May and, rarely, June in the hot weather. In Ratnagiri and in other parts of the Bombay Presidency Messrs. Vidal and Davidson found that they had two similar seasons, the principal months being November and December and then again in April and May. Over the rest of India the favourite months seem to be June and July.

The normal nest is composed entirely of sticks lined with roots, fibre, wool, hair or almost any soft material which may be easily obtained close by. Rags are a favourite article and in Eastern Bengal jute-fibre, which is always handy, is used more often than anything else. They are bulky affairs as a rule, very untidy and always coming to pieces, so that each year, if used again, they have to be practically rebuilt. This Crow seems to have a predilection for using curious material for its nest. Blyth records "several nests composed more or less, and two almost exclusively, of the wires taken from soda-water bottles, which had been purloined from the heaps of these wires commonly set aside by the native servants." Two pairs of birds in Eastern Bengal went one better than these and, according to Mr. J. R. Cripps, "two nests in the compound of the house in which I lived at Howrah were made entirely of galvanized wire, the thickest piece of which was as thick as a slate pencil. How these birds managed to bend these thick pieces of wire was a marvel to us; not a stick was incorporated with the wires, and the lining of the nest (which was of the ordinary size) was of jute and a few feathers. The railway goods-yard, which was alongside the house, supplied the wire."

A nest found by myself in my garden was made of sticks as usual but the lining was an old cap which held the eggs well but, not being supported underneath, eventually gave way when the young were well grown. Yet another nest found in Bombay was made entirely of spectacle-rims, purloined from a shop in the bazaar.

The House-Crow does not seem to mind what kind of tree he builds in. Perhaps, more often than not, he chooses a Mango, Tamarind or some other large tree with dense foliage but I have seen seven nests in one small leafless tree in the middle of the Dacca bazaar, the lowest nests not 10 feet from the ground. In Calcutta the "Gold Mohur" tree is this bird's favourite but in Barrackpore, 15 miles away, he prefers the tall Casuarinas. Nor do these birds

always build in trees but frequently place their nests on ruined mausoleums or even inhabited houses. Sometimes they will actually build in the verandahs of these latter, and Aitken gives an amusing account of the efforts of a pair of these Crows to construct their nest in the verandah of the 'Madras Mail' Office on a ledge of one of the pillars:—"The ledge was so narrow that one would have thought the Sparrow alone of all known birds would have selected it for a site. I was told that the Crows had been at their task two months before I saw them and I then watched them till nearly the end of October. The celebrated spider which taught King Bruce a lesson in patience was fitful and eager compared with this pair of Crows. I kept no account of the number of times their structure was blown down, only to be immediately begun again; but, as there was a good deal of rain and wind at that season, in addition to the regular sea breeze, it was a common thing for the sticks to be cleared off day after day. But perseverance will often achieve seeming impossibilities, and, moreover, the Crows worked more indefatigably as the season went on, and used to run up their nest with great rapidity, so that several times the structure was completed, or nearly completed, before being swept to the ground, though how it remained in its place for a moment seems a mystery, and twice I saw a broken egg among the débris. At length about the middle of September the Crows determined to try the pillar at the other end of the verandah. The new site selected differed in no respect from the old one, and was no less exposed to the wind; but the birds had grown expert at building "castles in the air" and now met with fewer mishaps. In the first week of October the hen bird was sitting regularly, so on the 8th of the month I sent a man up by a ladder, and he held up four eggs for me to look at. It really seemed after this that patience was to have its reward, but on the night of the 20th there came a storm of wind and rain, and when I went to office in the morning the nest was lying on the ground with two young Crows in it.

"I am told by a gentleman in the 'Mail' Office that the Crows have built in that verandah for five or six years past."

The usual clutch of Crow's eggs numbers four or five but six is not uncommon and sometimes three only are laid. So far as description of the eggs goes it is not possible to add anything to those already given of the other species of Crow. As a series they impress one as very intermediate, neither very dark nor very pale; nor can I, after an examination of many hundreds—possibly thousands—of eggs find that there is any variation in the geographical ranges parallel with the subspecific variations so striking in the birds themselves. If there is any it is possible that the eggs of the Common Indian House-Crow may average paler than those of the other races, whilst I think those of the Burmese birds are definitely the darkest of them all, as well as being just a trifle more boldly and richly marked.

Two hundred eggs average 37.2×27.0 mm.: maxima 44.1×27.4 and 41.1×29.1 mm.; minima 30.4×25.4 and 32.0×23.0 mm.

I have seen only two erythristic eggs of this Crow, these having been taken by a young friend of mine who was asked to send me two or three clutches from Mhow containing Cuckoos' eggs. The only eggs he took for me were four of these red eggs with one Koel's egg, but two of the former went astray somehow and never reached me.

(12) *Corvus splendens zugmayeri* Laubm.

THE SIND HOUSE-CROW.

Corvus splendens zugmayeri, Fauna B. I., Birds, 2nd ed. vol. i, p. 34.

The Sind House-Crow breeds in Baluchistan, Afghanistan, Sind, Mekran Coast, and S.E. Persia as far North as Fão. West it extends into the North-West Province and South Punjab, though birds from Jhang and elsewhere in the North are of the common Indian race. They are very common in Kashmir and, according to Meinertzhagen, are found in Sikkim and in Ladak. In Sikkim he records them as common at Gangtok, 5,800 feet, and about Darjeeling at 7,000 feet. At the latter place, however, all the birds I have seen were the Bengal Plains bird, as one would have expected, as these Crows always follow civilization and humanity into the hills and mountains as well as everywhere else. Here, doubtless, they had followed up the railway during construction, attracted by the garbage available all along the route at the camps of the coolies working on the embankments. In Sind wherever there are houses with trees of any kind about them the birds are very numerous and in Karachi they simply swarm. General Betham obtained a fine series of their eggs which he sent me with the following note:—

"These eggs were all taken in Karachi City, many in the most frequented of streets, others in gardens and in the Park. The nests were of the ordinary description of all House-Crows' nests but, owing to the paucity of good nesting sites and the scarcity of building material, an everlasting quarrel went on among the Crows, who often pulled other birds nests to pieces, even when they had eggs and young, in order to obtain twigs for their own nests. For this reason it was difficult to get full clutches as, during the fights, so many eggs were knocked out of the nests. I found them breeding all through June, most during the latter half and, while a few may have laid earlier, others were still nesting in July."

Ticehurst, however, says that though the majority of birds breed from the end of May to July, a few, possibly those of the year, breed in November, as he has seen building going on on the 5th of that month and has seen young just hatched on the 15th.

In Kashmir they breed principally in May. They lay four or five eggs in a clutch, rarely six. Two or three eggs are, however,



CORVUS SPLENDENS ZUGMAYERI.

The Sind House-Crow.

(Karachi, Sind, 1918.)

often found incubated, the reason for these small clutches being as above explained by Betham.

Eighty eggs average 37.5×25.8 mm., measurements which would seem to make them out to be longer, more narrow eggs than those of the other races, though one does not notice nor appreciate this difference when looking at series of the various races placed side by side.

The maxima are 45.0×23.5 and 38.5×28.5 mm. ; minima 31.2×24.6 and 45.0×23.5 mm.

(13) *Corvus splendens insolens* Hume.

THE BURMESE HOUSE-CROW.

Corvus splendens insolens, Fauna B. I., Birds, 2nd ed. vol. i, p. 34.

The Burmese House-Crow breeds throughout Burma, principally in March and April, but some few birds breed again in July, possibly those who have had their first nests destroyed. So numerous are these Crows in the large towns of Burma such as Rangoon and Prome that they have to be officially slaughtered in immense numbers, these slaughters taking place at the height of the breeding season. Mr. J. M. D. Mackenzie, who took the opportunity of collecting magnificent series of selected clutches of their eggs during these shoots, writes the following notes for me, which summarize the nidification of this Crow well :—

“These Crows are exceedingly common in and about Prome town, indeed so common are they that vast numbers have to be destroyed annually to prevent their becoming a pest. The great majority of the nests of these birds are placed in the uppermost small branches of “Rain” trees and, in consequence, it is often impossible to collect the eggs, though it is easy enough to destroy nests, eggs and young with a charge of small shot. The nests are placed at any height from fifty to sixty feet from the ground, generally the former, and eggs may be taken any time during March and April and again sometimes during July. The full clutch is normally four, sometimes three or five, six but very rarely. The Koel swarms in Prome and the Crows get very badly victimized by them.

“They begin building operations early and many Crows were seen in Rangoon beginning to collect sticks and building material on the 10th of February, when a few unfinished nests were seen. On the 20th the birds were seen copulating and on the 25th we saw a nest with one egg. In Prome our first eggs, two fresh ones, were seen on the 27th March, but I saw young hatched on 9.4.16, when I saw also two or three nests with six eggs in them.”

Two hundred and eighty-seven eggs measured by Mackenzie average 36.4×26.1 : maxima 42.75×28.4 and 41.5×28.8 mm. ; minima 31.5×24.8 and 34.6×22.5 mm.

As already mentioned, the Burmese House-Crow's eggs only differ from those of the other races in being a trifle more richly and deeply coloured.

(14) **Corvus splendens protegatus** Madarász.

THE CEYLON HOUSE-CROW.

Corvus splendens protegatus, Fauna B. I., Birds, 2nd ed. vol. i, p. 35.

The Ceylon House-Crow breeds in Ceylon, to which island it is confined, all along the coast-line wherever there are towns, villages or scattered human habitations but, according to Wait, it does not occur inland nor does it ascend the hills. It breeds from May to August, the great majority of birds laying in May.

The full clutch of eggs is smaller than in the more Northern forms, three or four forming the normal number, whilst two only are sometimes laid. Neither Wait, Phillips, Tunnard nor any other of the more recent field workers have ever taken five from a nest. The eggs vary but little and are, on the whole, indistinguishable from those of the Indian bird, though they are, as one would expect, considerably smaller.

One hundred eggs, mostly taken by Wait, average 34.8×25.6 mm.: maxima 41.0×26.3 and 37.2×27.1 mm.; minima 31.0×24.9 and 34.2×24.2 mm.

The Koel victimizes both species of Crow in Ceylon just as it does elsewhere.

Corvus monedula.

THE JACKDAW.

(15) **Corvus monedula sommeringii** Fischer.

THE EASTERN JACKDAW.

Corvus monedula sommeringii, Fauna B. I., Birds, 2nd ed. vol. i, p. 36.

The Eastern Jackdaw breeds within our limits from Afghanistan and Baluchistan through Kashmir and Ladak to Eastern Tibet, but it seems to be rare in both the two latter countries, though Meinertzhagen found two or three pairs at Leh.

The principal breeding month is undoubtedly May, but Whympere took a full clutch of six eggs in Srinagar as early as the 26th April, whilst other birds breed on as late as the end of June.

The late Mr. J. Davidson, in his paper on the "Birds of Kashmir" (Ibis, 1898, p. 7), thus sums up the breeding habits of the Jackdaw:—

"Noticed first at Uri in the Jhelum Valley on April 23rd, where Jackdaws were building in the fort, and from there in numbers in every village, from Baramulla to Srinugger. We found them

in abundance in the Sind Valley as far as Gund in the beginning of May, and later they appeared in considerable numbers at Gangadgir (7,000 feet), at the foot of the gorge leading to Sonamurg. We, however, never met with any in Sonamurg, and they do not seem to enter the gorge at all. We saw some nests in holes in buildings in Srinugger, and in holes in banks along the Jhelum, but the vast majority were in holes in trees, especially of Cheenar-trees, many being several feet from the mouths of the holes. The eggs were laid in the first three weeks of May and varied much, as they do in Europe. We saw a single pair of birds building on the 27th of June at Gandarbal, where there were many young flying, so that it is likely that some at least breed twice a year."

Later (1903) Col. R. H. Rattray took eggs at Sonamurg at an elevation of 8,000 feet.

It seems to be more common around the towns of Srinagar than anywhere else in Kashmir, breeding in great numbers in the Chenar- or Plane-trees, which form avenues and clumps about that town. The birds are very gregarious and General R. M. Betham records: "Very common at this season (May), breeding in holes in trees; nearly every tree holds a nest. In some of the larger trees, in which there are many holes, nearly all are occupied by the Jackdaw."

The nest is a mass of rubbish of all kinds: straw, grass, leaves, feathers, rags or anything else fairly soft and portable. Often there is a really bulky collection containing many handfuls of stuff but at other times there is not so much.

The eggs are like those of the English Jackdaw, a pale greenish- or bluish-white to a definite pale blue or blue-green with specks and spots of blackish and a few secondary spots of lavender or inky grey. The markings vary considerably. In some they consist of small specks scattered all over the egg, whilst in others the spots are larger, bolder and much fewer in number. Whatever the character of the egg, however, the markings stand out quite distinctly against the ground-colour, and it is this latter which dominates the general tint. In shape the eggs vary from fairly long ovals to broad blunt ovals. The texture is finer and closer than in a Crow's egg and there is often considerable gloss.

One hundred eggs average 34.4×24.9 mm. : maxima 39.4×24.8 and 35.0×26.8 mm. ; minima 30.3×23.8 and 31.0×22.7 .

Pica pica.

THE MAGPIE.

Since the second edition of Hume's 'Nests and Eggs' was written the Magpie has been divided into several races, the nidification of all of them being well known. Three races breed within the limit of our work.

(16) *Pica pica bactriana* Bonap.

THE PERSIAN MAGPIE.

Pica pica bactriana, Fauna B. I., Birds, 2nd ed. vol. i, p. 38.

The Persian Magpie breeds throughout the greater part of Northern Central Asia, South to Gilgit, Kashmir and Ladak. It occurs in Kuman and the Simla Hills but has not been reported as breeding, though it has been met with in Garhwal in July, so probably does breed there. In Baluchistan it is very common and equally so in Afghanistan.

In Persia this Magpie breeds in great numbers during April and early May. Two clutches taken in Astore were both obtained in June. In Ladak Osmaston found numerous nests in May, whilst in Quettah Major Williams found them breeding freely in March and April. Over the greater part of the area in which these Magpies breed they seem to prefer well-wooded open country, not forest, but open plains and even cultivated tracts in which there are many trees growing singly or in clumps. In Ladak, however, as Meinertzhagen notes, it "is essentially a bird of the wind-swept open and almost 'treeless' plains (Ibis, 1927, p. 371). Osmaston gives the following interesting account of its habits in the same country (Ibis, 1925, p. 673):—

"This Magpie is very common in Ladakh, between 9,000 and 13,000 feet.

"As Ladakh is almost treeless, except near villages, where Poplars and Willows have been planted on irrigated lands, and as the Magpie requires a tree, or at least a bush on which to place its nest, these birds are only found in the neighbourhood of villages.

"In some villages there are small willow or poplar plantations covering an acre or more. In other cases the number of trees in a village may be counted on the fingers of one or both hands, with the result that there may be as many pairs of Magpies in a village as there are trees. In the village of Gya, elevation 13,000 feet, there is only a single tree, which was occupied by a pair of Magpies. Mr. Ludlow, who visited this spot two years before, also saw a single pair in possession of this tree.

"In certain villages where trees are scarce Magpies' nests were found in thorny bushes as low as five feet from the ground.

"Nests are similar to those of the English Magpie, being built of sticks reinforced inside with a thick layer of mud, and finally lined with fine roots, the whole being roofed over with a dome of thorns. In many instances several nests, in one case as many as five, were found superimposed, the top nest only being occupied, those below being old ones of previous years.

"Altogether twenty-eight nests were examined. Two of these contained 7 eggs, three with 6 eggs, five with 5 eggs, eight with 4 eggs.

"The eggs do not vary a great deal in colour, and all varieties could be matched, I think, with eggs of the English Magpie. They do vary, however, considerably in size. Eggs vary in length from 43.1 to 32.4 and in breadth from 27.1 to 23.1."

It is interesting to note that the single tree at Gya, referred to above, again contained a Magpie's nest when visited by Meinertzhagen two years later.

The eggs of all the races of Magpie are exactly alike and, except for the measurements, a description of one suffices for all, as indeed does the description of the nest.

The eggs of the Magpie are very like small, dull and rather brownish eggs of Crows and abnormally coloured eggs of the two genera run into one another. It is rare, however, for a Magpie's egg to have the ground-colour either pure pale blue or blue-green, this being almost invariably an olive, brown or even yellowish tint. In most eggs the markings consist of primary small blotches of dark umber-green with secondary blotches few in number and pale lavender in colour. The primary markings are generally numerous over the whole surface, sometimes less so at the smaller end, but rarely forming caps at the larger. In a minority of eggs the markings are more sparse and are bolder.

Two hundred eggs average 36.1×24.6 mm. : maxima 43.1×23.4 and 38.6×27.1 mm. ; minima 29.5×22.5 and, in a pigmy egg, 22.7×19.1 mm.

In shape the eggs are fairly long ovals, sometimes a little compressed, sometimes quite obtuse at the smaller end. The texture is rather fine and close, often with a faint gloss. The full clutch of eggs varies from four to seven, generally five or six.

(17) *Pica pica sericea* Gould.

THE CHINESE MAGPIE.

Pica pica sericea, Fauna B. I., Birds, 2nd ed. vol. i, p. 39.

The Chinese Magpie breeds from Korea and South Japan through Northern China to Yunran and the hills of the Shan States and Kachin Hills. It has also been recorded from the Chin Hills.

Messrs. Vaughan and Jones found these birds breeding in immense numbers in Wawaiyu, Canton, Kuangtung and again all round Hongkong. It is common in the Shan States and occurs in the Kachin Hills, where Grant and Harington took its nests and eggs.

The clutches number five to seven and only differ from those of the Kashmir Magpie in being on an average distinctly paler. Seventy-five average 35.5×24.9 mm. : maxima 43.4×24.7 and 37.1×27.0 mm. ; minima 30.6×24.0 and 34.0×23.0 mm.

In China they breed almost entirely in February and March, though a few eggs have been seen both in April and May, whilst

La Touche found them commencing to build in December. This author also records that they do not always add domes to their nests (Ibis, 1906, p. 433.) In Northern Burma eggs have, so far, only been taken in February and March. Harington found them to be very common in the Bhamo District, on the border of China, where trees are scarce, and he once saw more than a dozen nests.

In parts of Burma and China the Koel regularly victimizes the Magpie instead of any of the Crows.

(18) ***Pica pica bottanensis*** Delessert.

THE BLACK-RUMPED MAGPIE.

Pica pica bottanensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 39.

This bird breeds in Tibet and Kansu in N.W. China. Mr. St. J. Hickley sent me nests and eggs which I understood from him were taken in Northern Sikkim. Since then, however, Stevens, Meinertzhagen and Bailey have not observed this Magpie in Sikkim and it is possible that they came from across the border in South Tibet.

Nests and eggs were first found by Captains Steen and Kennedy in 1907-10, and in the latter year Captain Kennedy, in *epistola*, writes: "I send you some sets of eggs of the Tibetan Magpie, which breeds freely all round the plateau (Gyantse), placing their nests in the pollard willows, plane trees and even in thorn bushes quite low down. The nest is a domed affair, mud-lined and like that of the English Magpie, but much bigger."

Ludlow (Ibis, 1928, p. 53) gives a somewhat fuller account:—

"Nest construction takes place towards the end of March, and eggs are to be found in April, May and June. The nest is the usual huge domed nest of sticks, with a lining of grass and fibres. Sometimes two or three nests are placed on the top of each other, but I always found the bottom nests untenanted, and they were probably old nests of previous years. Nests may be found high up in the topmost branches of high poplar-trees, or low down in a thicket only a few feet from the ground. The usual clutch is four or five, but sometimes six eggs are laid and occasionally only three."

To these descriptions all that need be added is that the nests are built in trees round houses, in single trees in cultivation or open plain, or in clumps and thickets, just as the bird may find convenient, and, of course, there is no attempt at concealment.

Seventy eggs (including 22, Ludlow) average 38.6×26.5 mm. : maxima 42.1×26.6 and 39.7×27.4 mm. ; minima 33.4×26.2 and 37.2×25.1 mm.

Urocissa erythrorhyncha.

THE RED-BILLED MAGPIE.

(19) **Urocissa erythrorhyncha erythrorhyncha** Bodd.

THE CHINESE RED-BILLED MAGPIE.

Urocissa melanocephala melanocephala, Fauna B. I., Birds, 2nd ed. vol. i, p. 41.

Urocissa erythrorhyncha erythrorhyncha, ibid. vol. viii, p. 594.

This Red-billed Magpie breeds in China and Yunnan, just entering our area in the Eastern Shan States. It is extremely common round Hongkong, where Surgeon-Commander H. K. Jones took a fine series of their eggs which he sent to me. His account of their breeding is as follows :—

“The earliest nests are built at the end of March or the beginning of April and breeding goes on through May, June, July and August. It is double-brooded in most cases.

“The nest is a very slight affair, made of thin twigs and lined with the aerial rootlets of the false Banyan-tree and with finer twigs.

“Almost always it is possible to see through the nest in every direction. In construction it is flat and the central hollow containing the eggs is very shallow. A favourite nesting site is a topmost twig of a thin sapling, but not infrequently the extremity of a horizontal bough is selected, and only once was the nest found in a strong fork near the main trunk. Firs are, perhaps, the favourite with this species, but a variety of deciduous trees have also been noted as used.

“Both birds assist in building the nest, which is usually about 20 feet from the ground.”

The courtship of all Magpies is much the same whatever the subspecies may be. La Touche (Ibis, 1905, p. 26) describes the display of the male of the Chinese race in the breeding season. “It puffed out the feathers of its head and neck, raised its tail, which was spread like a fan, and turned its body slowly from side to side.”

In N.E. Chihli La Touche found them laying from the 29th May to the 2nd July.

The number of eggs in the clutches in my collection vary in number from four to six. There is one 3, but both these and the one 4 are probably incomplete clutches and five seems to be the normal full clutch.

This is one of the few species of birds of which the geographical races lay eggs widely differing from one another, although they may show a strong family likeness and certain individual clutches may be indistinguishable. The present, typical, form lays eggs which, as a series, may be said to look pale to darkish earthy brown. The

ground-colour varies from pale yellow-grey, which is rare, to a definite earth-brown, equally rare. Other eggs are intermediate and in some cases tinged with olive. The primary markings consist of blotches of umber-brown or, less often, of light reddish-brown. As a rule these are small and scattered over the whole egg, nowhere numerous, but more so at the larger end. In some eggs the blotches are larger and rather bolder, and in these eggs they are decidedly more numerous at the larger end, where they may tend to form a ring or cap.

Forty eggs average 29.6×22.0 mm.: maxima 34.0×23.0 and 31.1×23.4 mm.; minima 27.0×21.8 and 28.2×21.6 mm.

It is curious to note that, though there is little difference in size between the Chinese and Burmese birds, yet the former lays much the smaller eggs. A larger series would probably reduce or wipe out the difference.

The Koel cuckolds this Cuckoo in some places and I have twice had clutches of eggs sent me as of this bird which proved on careful examination to be all Koels' eggs.

(20) *Urocissa erythrorhyncha occipitalis* (Blyth).

THE INDIAN RED-BILLED BLUE MAGPIE.

Urocissa melanocephala occipitalis, Fauna B. I., Birds, 2nd ed. vol. i, p. 41.
Urocissa erythrorhyncha occipitalis, ibid. vol. viii, p. 594.

This fine Magpie breeds throughout the Himalayas from Kashmir, Kuman and Nepal to Sikkim, breeding at elevations between 5,000 and 10,000 feet. The great majority of eggs appear to be laid in May but some individuals breed all through June, whilst Whympers, in Naini Tal, saw eggs in nests from the middle of May to the middle of June, equally common at all times. Col. G. F. L. Marshall also records one nest as early as the 24th April containing six half incubated eggs.

The nest is a shallow cup, rather small for the size of the bird and rather flimsy and ill made, though an exceptional nest may be fairly strong and substantial. The materials consist mainly of small twigs, sometimes mixed with a few leaves and coarse roots. In most nests the lining is of fine roots only but in one or more, taken by Rattray, it was made entirely of fine grasses. The situation selected varies greatly. Some taken by Dodsworth round about the Simla States were taken "in deep forest" or "on the outskirts of deep forest"; others taken by A. E. Jones in the Kote and Keonthal States were built in exposed positions in cultivated or barren land. Rattray seems to have found them breeding both in forest and in the open. In most cases small trees are selected in which to build the nest, this being placed at any height from about 9 or 10 to 20 or even 30 feet.

The eggs of this subspecies, generally five or six in a clutch, are much handsomer than those of the preceding bird. As a series they are clay-coloured eggs boldly marked with dark brown. The ground varies from pale creamy stone to rich buff, a clay tint predominating in most, whilst, rarely, there may be an olive or brownish tint. The markings are bold in character, usually fairly big blotches, standing out well in contrast to the ground-colour. In about three clutches out of four the primary blotches are a rather rich red-brown, nearly always larger and more numerous at the larger end, where they often form a ring or cap. In a few eggs the character of the blotching is weaker and more smudgy, whilst they cover equally the whole surface. The secondary blotches are lavender or inky grey, much less numerous than the primary.

Sixty eggs average 33.9×23.9 mm. : maxima 36.9×25.1 and 35.6×25.4 mm ; minima 31.0×22.1 mm.

The number of eggs in a full clutch varies from four to six, five being the usual and six not uncommon.

(21) *Urocissa erythrorhyncha magnirostris* (Blyth).

THE BURMESE RED-BILLED BLUE MAGPIE.

Urocissa melanocephala magnirostris, Fauna B. I., Birds, 2nd ed. vol. i. p. 42.

Urocissa erythrorhyncha magnirostris, ibid. vol. viii, p. 594.

This Magpie breeds from the Hills South of the Brahmapootra, through Manipur and the Burmese Hills to Siam. In Assam, South of the above river, it occurs but very rarely and then only in the higher ranges over 5,000 feet. Cook and Harington found it breeding in some numbers in the Ruby Mines District, Hopwood obtained nests in the Chin Hills at Tounghoo and also at Maymyio, whilst Mackenzie took eggs at the last-mentioned place, the Manipur Chin Hills boundary and at Pasok near Amherst. All these gentlemen describe the nest as a slight structure of twigs and sticks, lined with the same, only finer, or with roots and tendrils. Hopwood and Mackenzie both also refer to the flatness of the nest and the shallowness of the egg receptacle and, apparently, the nest differs in no way from that of the Indian bird. The site selected may be either in open country, thin deciduous forest or, occasionally, in fairly thick forest. The tree chosen is most often quite a small one and eggs have been taken from sites as low down as 9 feet from the ground. On the other hand, Mackenzie records one taken "30 feet up in an immense teak tree" and another "20 feet up in a large tree."

The breeding season is principally March and April, a few birds still laying up to the middle of May. In number the eggs vary from three to six. In shape the eggs are similar to those of the

other races ranging from rather obtuse broad ovals to rather long pointed ovals; the texture is somewhat coarse, yet brittle and with little or no gloss. In colour they differ greatly from the eggs of the other races, and as a series might almost be called erythristic. The ground varies from a pale cream or creamy-yellow stone-colour to a deeper pink, and in only one clutch have I seen any tinge of green. In disposition and character the markings resemble those of the Indian bird, but the brown is lighter and much more red in tint.

Forty-six eggs, including Mackenzie's series, average 34.1×24.0 mm.: maxima 37.5×23.1 and 34.25×25.75 mm.; minima 30.0×23.0 and 31.5×21.75 mm.

Urocissa flavirostris.

THE YELLOW-BILLED MAGPIE.

(22) *Urocissa flavirostris flavirostris* (Blyth).

THE SIKKIM YELLOW-BILLED MAGPIE.

Urocissa flavirostris flavirostris, Fauna B.T., Birds, 2nd ed. vol. i, p. 43.

This Yellow-billed Magpie breeds in Sikkim, Bhutan and, almost certainly, in the sub-Himalayas between 5,000 and 9,000 feet in Assam, North of the Brahmapootra.

Very little is on record about this bird's breeding. A single egg was sent to me with nest and parent taken on the 7th May, 1917, on the Sikkim-Tibet road and labelled "Chumbi." The nest is a shallow cup of sticks, quite well made for a Magpie's, and lined with roots, and it had been taken from a tree, evidently a Pine of some kind, at about 15 feet from the ground. The egg, judging from those taken later by Osmaston, is abnormal. The ground-colour is pale cream, richly blotched with bright reddish-brown, with a few secondary blotches of pale neutral tint. It measures 32.0×22.9 mm. and was taken on the 7th May, probably at an elevation of about 9,000 feet, a nest and eggs of a Tragopan being taken close by.

Osmaston took two nests in Darjiling on the 23rd May and 3rd June, each containing four fresh eggs. He describes the nests—"open cup-shaped nests made of small sticks and lined with rootlets, rather small and flimsy nests in comparison with the size of the builder. Both nests were placed on small trees in open forest, one 15 feet from the ground and one 18 feet. They were taken at altitudes of 8,000 and 9,000 feet." The eggs are handsome replicas of those of the next bird and can be matched with many of them.

Nine eggs average 34.8×23.4 mm.: maxima 37.1×23.9 and 34.5×24.1 mm.; minima 32.0×22.9 and 32.2×22.8 mm.

(23) ***Urocissa flavirostris cucullata* Gould.**

THE WESTERN YELLOW-BILLED MAGPIE.

Urocissa flavirostris cucullata, Fauna B. I., Birds, 2nd ed. vol. i, p. 44.

This Magpie breeds practically throughout the North-West Himalayas, being common in Kuman and even more so all round the Murree Hills, where Rattray took many nests, between 5,000 and 9,000 feet, all through May and June. In these same hills Marshall, however, recorded taking fresh eggs as late as the 15th August. It is also common in the Garhwal Hills and probably extends into Western Nepal. The nest is always built in trees in well-wooded country, but not always in forest. One taken by Whympers in Ramree, Garhwal, was built in an Oak-tree in the open at about 8,000 feet; two others taken by Rattray in Dunga Gali, on the 22nd May, each containing four eggs, were both built in small trees growing in a ravine in comparatively dense forest, whilst others, again, taken by the same collector in Changla Gali in May and June, were on the outskirts of open forest. Oaks seem to be the favourite tree everywhere, though others are often selected. Captain Cock, very nearly seventy years ago, took six nests around Dharamsala and says that most of these were placed in hill oaks in the thick mass of twigs growing where these had been polled and they were in some cases very difficult to see. When a nest is built in a densely foliated tree it may be well concealed by the mass of leaves or branches round it. Often, however, it is built in some small tree, low down, where it is most conspicuous. The birds sit close and sometimes will not leave the nest until the tree is climbed close up to the nest itself.

Marshall describes the nest as a rough structure of twigs and roots, lined with grass and generally placed close to the trunk of the tree, and he adds: "the outer part of the nest is large compared to the true nest and consists of a heap of twigs etc., like what is gathered together for the platform of a Crow's nest." Others describe the nest as small and poorly built of twigs etc., in some instances being really quite flimsy. It is never domed like the nests of the true Magpies. The lining is nearly always of fine grass-bents over an inner lining of black and red roots, but sometimes roots only are used, the finest being those used for finishing off the work.

The eggs number three or four to six; according to Hume the usual number is five, but Rattray and Whympers found four to be the normal clutch, whilst they also took three eggs which were more or less incubated. Personally I have never seen or had sent me a clutch of six.

The eggs, as a whole, are rather dull, an olive-brown tint predominating. The ground-colour varies from a pale olive or yellowish-stone to a pale dull olive-brown. In the most common type the

markings consist of small reddish-brown blotches and freckles scattered lightly over the whole surface and more numerous at the larger end, where, however, caps or rings are exceptional. The secondary marks are of dull neutral tint. In the second type the whole surface of the eggs is densely covered with rather longitudinal small blotches and specks of brown, leaving but little of the ground-colour to show through. In shape the eggs vary from a broad, rather elliptical oval to a long oval, with the smaller end distinctly compressed. The texture is rather coarse and the surface glossless or practically so, though I have one clutch in which the gloss is highly developed.

One hundred eggs average 33.8×23.1 mm. : maxima 37.1×24.1 and 33.0×24.2 mm. ; minima 30.0×22.1 mm. A pigmy egg in my collection measures 27.9×20.4 mm.

Cissa chinensis.

THE GREEN MAGPIE.

(24) *Cissa chinensis chinensis* (Bodd.).

THE INDIAN GREEN MAGPIE.

Cissa chinensis chinensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 45.

The Green Magpie breeds throughout the Lower Himalayas from the Jamna Valley to the extreme East of Assam and Eastern Bengal. Thence it extends to Yunnan and Setchuan in Western China, where it is common, whilst it has also been recorded from Fokhien. South-East it occurs as far as Tenasserim in Burma and in Siam.

This is a bird of the forest and, though it sometimes breeds in bamboo- or scrub-jungle mixed with tree-growth, it undoubtedly prefers evergreen forest growing in the humid foot-hills between the plains and some 3,000 feet, though its nest has been taken at as high an elevation as 5,000 feet. It was an extremely common bird in all the hills in Assam South of the Brahmapootra and I took many nests there. Most were built in small trees or high bushes in the interior of evergreen forest, though even here the birds selected trees beside rivers and streams, small pools of water or open glades where the sun could penetrate and attract insects etc. A rather favourite haunt was some deep rocky ravine running through a copse surrounded by open grassland but, in such cases, the jungle was always thick and the cover good. Hodgson recorded it as breeding in bamboo-clumps in Nepal and Bingham also found a nest in Tenasserim built in "a bamboo bush." In Assam, where I must have seen several hundred nests, I can only recall two built in bamboo clumps and, in that province, such sites were certainly quite unusual. Most nests were placed in small trees or saplings,

sometimes in high bushes, occasionally in tangles of raspberry vines or other creepers or, very rarely, in bigger trees. Few nests are found over 20 feet from the ground, while often they may be within five or six. I have seen a few nests with eggs in the end of April and, on the other hand, have taken fresh eggs on the 23rd July and 6th August. The vast majority of eggs are, however, certainly laid from early May to early June.

The nest is a strong well-made cup, the principal materials in most nests being leaves, twigs and roots all well and strongly interlaced and generally mixed with a certain amount of moss, both dried and green. In some nests a number of bamboo-leaves are wound round and bound in with the rest on the outside, and in every case the body of the nest is kept firm and close by tendrils, weed-stems or similar materials. The lining is of fine roots, sometimes these only being used, whilst at other times fern-rachides, moss-roots or grass is intermixed and, occasionally, one or more of these materials is used alone. In size the nests vary in diameter from 6 to 7½ inches and in depth from 3 to 5, having an internal cup somewhere about 5 broad by 1 to 3 deep, generally under 2 inches. The bird sits very close and, as the nest is generally very conspicuous, she and it can be seen from a long way off. One of the first nests I ever found was in a densely wooded spinney with a ravine running down its length. I had disturbed a cow Gaur and, suspecting a calf, hunted for it and, keeping my eyes on the bushes and ground, paid no heed to the trees above me. The new-born calf was soon found lying flat and motionless in a bed of fallen leaves and, while examining the calf, I heard a squawk above me. Looking up, I found a Magpie peering over the edge of her nest and taking an intense interest in us. Every now and then she squawked at us, but did not move until I had climbed up the side of the ravine above her and put out my hand to the nest and caught her on it.

The eggs number four to six and vary greatly in appearance, though as a series they are very close to the eggs of the genus *Garrulus*, differing in their much harder, finer and more glossy texture. The eggs of the latter genus are also more olive-brown rather than reddish-brown, as in *Cissa*.

The eggs in my own collection vary from white faintly and sparsely speckled with pale reddish to dark buffy-brown densely freckled with reddish-brown all over, the freckles coalescing to form rings or caps at the larger end. Between these extremes, which are rare, there is every intermediate phase of colour. In some eggs the freckles become small blotches, rather more sparsely scattered and showing the ground-colour, though never standing out boldly against it. In a few eggs there is a faint olive, cream or yellowish tint but the prevailing colour is reddish- or buffish-brown. The secondary markings are of pale lavender, but there are but few of them and they are sometimes entirely absent.

In shape the eggs are generally fairly true ovals, sometimes obtuse and sometimes slightly pointed; broad blunt eggs are exceptional. The texture is rather close and hard and, especially in fresh eggs, there is a moderate gloss. The texture would suffice to distinguish them from those of the rare Jay *G. l. persaturatus*, which breeds in the same area as does this Magpie, only at more lofty elevations.

Two hundred eggs average 30.2×22.9 mm.; maxima 33.3×23.0 and 32.5×23.7 mm.; minima 26.8×20.9 mm.

(25) *Cissa ornata* Wagler.

THE CEYLON MAGPIE.

Cissa ornata, Fauna B. I., Birds, 2nd ed. vol. i, p. 46.

This Magpie is restricted to Ceylon, where it may be found in dense evergreen jungle from the foothills up to 7,000 feet, breeding, according to Legge, wherever found, but perhaps not at the highest elevations. The only record of its breeding is that of Legge, who writes:—

“This bird breeds during the cool season. I found its nest in the Kandopolla jungles in January; it was situated in a fork of the top branch of a tall sapling, about 45 feet in height, and was a tolerably bulky structure, externally made of small sticks, in the centre of which was a deep cup five inches in diameter by $2\frac{1}{2}$ in depth, made entirely of fine roots; there was but one egg in the nest which, unfortunately, got broken on being lowered to the ground. . . . It measured 0.98 in diameter by about 1.3 in length.”

In 1911 J. E. Jenkins took four nests for me with eggs, all near Kandy and all, according to him, in “dense forest.” In his letter sent with the nest and eggs he describes the former as “stick nests, with linings of roots and measuring 6” in diameter and 2” deep internally and about 2” bigger each way externally; cup-shaped and strongly built. They were all placed in small trees between 15 and 20 feet from the ground and all were in small branches and very difficult to get at and bring down in spite of being so near the ground. All were taken at an elevation of about 2,000 feet.”

These eggs were all taken in February and March.

I also obtained two clutches, one of 5 and one of 3 eggs, from Lazarus, a small dealer in Natural History objects in Slave Island. The eggs, he said, had been brought in with the birds from the foothills near Colombo along the railway line on the 3rd and 4th March.

The eggs cannot be distinguished in any way from those of *Cissa chinensis*. Twenty-four average 30.5×22.1 mm.; maxima 32.0×22.9 and 29.9×23.1 mm.; minima 28.0×21.0 mm.

Dendrocitta rufa*.

THE TREE-PIE.

(26) Dendrocitta rufa rufa (Latham).

THE INDIAN TREE-PIE.

Dendrocitta rufa rufa, Fauna B. I., Birds, 2nd ed. vol. i, p. 48.

This Tree-Pie breeds throughout West Southern India, Central India and Eastern India north of the Godavari and South of Bengal and Behar. The United Provinces form seems to be the same as the Bengal race. In the Eastern Ghats it is replaced by Whistler's *Dendrocitta rufa vernayi*.

The Tree-Pies are amongst the most common and familiar of our Indian birds and breed wherever found. They are birds of cultivated and inhabited areas, more common in and round about towns and villages than in country remote from them. It frequents open country which is well wooded, breeding in Mango-orchards clumps of trees close to roads, single trees standing in cultivation or in gardens of houses and in parks. As a rule it selects a large tree in which to build its nest, placing it high up in the top branches where it is well concealed from view by the thick foliage. The concealment, however, does not appear to be intentional, for the birds inform the whole neighbourhood of the fact that they have a nest in the tree by their demonstrations when any stranger, mammal or avian, approaches it and by their noisy chatter and calls at all times. Big trees are not always considered essential and though, perhaps, two out of three nests may be built in Mango, Popul or Banyan, yet the third may be placed on some small tree in the rice-fields, a cactus hedge in a garden or even some tall thorny Bér-bush (*Zyiziphus jujuba*) or high hedge of thorns. Both birds take part in the building of the nest, during which they are even more noisy than at other times. Both also take part in incubation and in feeding the young ones. The breeding season is protracted and varies a good deal in different parts of its range. In Travancore Bourdillon and Stewart found it breeding almost entirely in March and April, though a few birds continued to lay until the end of June. In Baroda Sir Percy Cox obtained nearly all his nests in June and July, whilst eggs were occasionally laid as early as March or as late as August in the same district. Jesse and Whympers, round about Lucknow, seemed to find it breeding equally freely in April, May and June, whilst Betham in Ferezepore took eggs from early April to late July.

* Kinnear and Whistler have resuscitated the name *vagabunda* which I used in my Catalogue. Whether *Corvus rufus* of Latham is invalidated by *Lanius rufus* of Scopoli is a doubtful point, and for the present I shall retain the name *rufa*.

The nest is a very untidy structure of twigs and sticks, really consisting of two parts, an outer nest or platform made entirely of twigs, very often unpleasantly thorny ones, and an inner one, which is the true nest, built of twigs, roots, grass, fibre and leaves with a lining almost exclusively of roots. In size they vary greatly and I have seen a nest fully 10 inches across the rough, untidy platform and perhaps 6 inches or more deep, whilst the neater part, containing the true root nest, was certainly not more than 6 inches in diameter by about $2\frac{1}{2}$ deep. On the contrary I remember a nest built in a Babool-tree in which the platform was dispensed with, but the outside of the nest was well encased in prickly Babool-twigs, the whole measuring about 6 inches by 4 inches or rather less.

The full number of eggs in a clutch is four or five, generally four, three only being occasionally laid.

Incubation takes 14 days, sometimes a day less or more, perhaps according to the month in which they are laid, as, during the greater part of the day neither bird sits much, though one or both keep close to the nest.

The eggs vary greatly, but nine out of ten are of one or the other, of two types. The first has the ground-colour pale salmon or creamy pink, handsomely blotched with reddish, the blotches generally numerous at the larger end, where they may form a ring or cap, and less numerous elsewhere, always showing up boldly against the ground-colour. The second type has the ground-colour pale bluish and the markings of pale olive-grey to rather rich reddish-brown. The secondary or underlying marks are of pale grey in both forms but seem to be more numerous and more noticeable in the second. Intermediate eggs are rare but curious sets in both types are numerous. In the first-mentioned group I have one set of the palest salmon-white with a ring of red spots round the larger end of each egg. In another clutch the ground is white with a few red blotches scattered about as on some Rails' eggs. Among those of the second type I have blue eggs unspotted and one with a few red specks only. Perhaps the most extraordinary clutch of eggs is one taken by Mr. E. H. Gill in Ghazipur*, the eggs pure white and double the bulk of an ordinary egg, with quite different texture. Fortunately in this instance the nest was one built under the eyes of Mr. Gill in his garden, each egg inspected as laid and, finally, the hen bird put off the nest and the eggs taken.

One hundred eggs average 27.7×21.9 mm : maxima 30.4×24.1 mm. (not including Mr. Gill's set) ; minima 25.6×21.1 and 27.8×20.9 mm.

* These seem to be referable to the Bengal form, *Dendrocitta r. vagabunda*.

(26 a) *Dendrocitta rufa pallida* Blyth.

THE SIND TREE-PIE.

Dendrocitta rufa pallida, Fauna B. I., Birds, 2nd ed. vol. viii, p. 595.

Ticehurst, to whom is due the recognition of Blyth's subspecies, thus defines its breeding-range :—"N.W. Himalayas, Kuman, Garhwal, Dehra Dun, Simla, Sind, Rajputana, Punjab and North-West Frontier Province."

This race of Tree-Pie throughout its range seems to have a more restricted breeding season than the preceding bird, the very great majority laying during May and June. It sometimes lays, according to Ticehurst, in April also. Its habits when breeding do not differ from those of its cousins, though Ticehurst says that in Sind it is more shy. Eates and Betham, however, say it is as noisy and familiar in Sind as it is elsewhere. It is of course only found in well-wooded areas and, for nesting purposes this race seems to be very partial to *keekeer*, *kundi* and Babool-trees.

Nests and eggs differ in no way from those of the other species, though, as one would expect, they average a trifle larger.

One hundred eggs average 28.1×21.9 mm. : maxima 32.7×20.3 and 31.1×22.4 mm. ; minima 26.3×20.5 and 32.7×20.3 mm.

Osmaston found this bird breeding in some numbers up to 3,000 feet, whilst Whympster took them up to 5,000 feet near Naini Tal ; it is common round Mussoorie and in other hill-stations of the outer Himalayas up to 7,000 feet.

(27) *Dendrocitta rufa vagabunda* (Lath.).

THE BENGAL TREE-PIE.

Dendrocitta rufa vagabunda, Fauna B. I., Birds, 2nd ed. vol. i, p. 50.

This subspecies of Tree-Pie breeds in the sub-Himalayas from Nepal to Eastern Assam and in the United Provinces, Behar, Bengal and Manipur. Birds of the northern part of the United Provinces, though somewhat indeterminate, seem to be nearest this race.

The breeding season of this Magpie is during May and June but, as with the other races, the season is a very long one and nests may be found with eggs from the end of March well on into August. Many nests are placed in trees in gardens and many others in Mango-orchards ; on the other hand small Sissoo- and Acacia-trees, standing all alone in cultivation are favourite sites for nests, though so exposed and conspicuous. Another common site in Behar is in the cactus hedges commonly grown round fields.

The eggs differ in no way from those of the other races of Tree-Pie but I have one clutch of three which, had I not personally seen the parent bird on the nest, I should have thought to be eggs of the Himalayan Tree-Pie. In colour these are a yellow-cream boldly blotched with olive-brown and inky grey, the blotches exceptionally large and most numerous at the larger end of the eggs.

One hundred eggs average 29.0×21.5 mm. : maxima 32.3×22.0 and 31.0×23.2 mm. ; minima 25.9×20.9 and 31.9×20.6 mm.

Both parent birds take part in incubation, as I have shot the cock bird off the eggs. A nest found containing three eggs on the 16th May had four on the 17th and the first young had hatched on the 30th, so presumably incubation lasts about 14 days.

(28) *Dendrocitta rufa sclateri* Stuart Baker.

THE CHIN HILLS TREE-PIE.

Dendrocitta rufa sclateri, Fauna B. I., Birds, 2nd ed. vol. i, p. 50.

The breeding range of this Magpie, so far as is known at present, is restricted to the Chin Hills and the Northern Arrakan Yomas.

Hopwood and Mackenzie took eggs of the Chin Hills Magpie in the Upper Chindwin from the 1st of April to the 5th of May. The former took one clutch of six, probably exceptional, and an incomplete set of two. Mackenzie obtained one clutch of five and one of four. All four nests were built in small trees or saplings in open forest and, though it generally haunts the vicinity of villages, it is much more of a forest bird than any of the other races. It apparently breeds on Mount Victoria up to an elevation of at least 7,000 feet.

The eggs differ in no way from those of the other subspecies.

Seventeen eggs average 30.5×21.5 mm. : maxima 32.3×23.3 mm. ; minima 28.3×21.3 and 29.5×19.3 mm.

(30) *Dendrocitta rufa saturator* Ticehurst.

THE TENASSERIM TREE-PIE.

Dendrocitta rufa saturator, Fauna B. I., Birds, 2nd ed. vol. i, p. 50.

The exact range of this race is not yet definitely known but it appears to breed throughout peninsular Siam and Burma. This form of Tree-Pie is an earlier breeder than most of its relations. The latest date I have recorded is the 3rd of May by J. M. D. Mackenzie in Misty Hollow, Tenasserim, whilst the earliest is for three hard-set eggs taken by Hopwood in Tavoy on the 12th February. Most birds seem to breed in March and early April and K. Macdonald

found young just hatching on the 1st of the latter month and on the 23rd March. Hopwood obtained his nest from a small tree in open forest but it more commonly haunts the cultivated country in and round about villages. Nests and eggs do not differ from those of the preceding races.

Fifteen eggs average 29.7×20.9 mm. : maxima 32.2×20.0 and 30.2×22.0 mm. ; minima 27.3×20.4 and 32.2×20.0 mm.

(31) *Dendrocitta leucogastra* Gould.

THE SOUTHERN TREE-PIE.

Dendrocitta leucogastra, Fauna B. I., Birds, 2nd ed. vol. i, p. 51.

The Southern Tree-Pie differs from all the races of the species already described in being a bird of the heavy damp forests rather than of the open Plains or, at most, light forests and semi-open country. Bourdillon writes about it :—"A bird of the Forests, breeding well within them and keeping well away from Human beings. A shy bird, laying in March." A nest taken by him and sent to Hume is described as follows :—"The nest of twigs was built after the style of the English Magpie's nest, minus the dome. It consisted of a large platform 6 inches deep and 8 or 10 broad, supporting a nest $1\frac{1}{2}$ inches deep and $3\frac{1}{2}$ inches broad." Here he adds that the bird seems "to prefer the smaller jungle and more open parts of the heavy forest." Mr. J. Stewart, who took a fine series of these birds' eggs, sends me many interesting notes which may be summarized thus :—

"The Southern Tree-Pie seems to have two definite breeding times, first in March and April and then again in August, breeding in about equal numbers in each period. This is essentially a bird of heavy forest and not one of gardens and villages like *rufa* and they prefer the wet humid forests of the Western slopes of the Travancore Hills to the more dry Eastern sides. They enjoy the dense secondary growth in abandoned Coffee clearings where they search for food, which in their case seems to be principally berries and fruit, though they are omnivorous and just as arrant egg thieves as *rufa*. For breeding purposes they keep to dense, wet forest, building their nests on small saplings and trees at no great height from the ground. They never seem to breed in large or very heavy foliated trees but I have taken their nests from clumps of bamboos."

"The nests are bulky replicas of those of the Common Tree-Pie (*rufa*) but have a proportionately bigger and more definite platform and, if anything, a smaller true nest. There are hardly any other materials than sticks and twigs used in the construction ; those on the outside are stiff and often thorny, those on the inner nest,

smaller, softer and sometimes mingled with roots. I have seen nests at 5000 feet but they are more common between 1,000 and 2,000 feet. They are very noisy birds during the breeding season and among the many calls I have heard there is one curiously like that of a duck. They lay three or four eggs, more often the former than the latter."

The eggs resemble those of the Himalayan Tree-Pie more closely than they do those of the *rufa* group. I have seen no eggs of the very common *rufa* type with a pale salmon ground. In this species the ground-colour varies from a pale blue-green or grey-green to a warm creamy-buff. Some eggs are a pale yellowish buff and occasionally they have a faint tinge of brown. The blotches are bold and large, sometimes very large and, nearly always, rather numerous at the larger end and sparse elsewhere. In colour they vary from a pale olive-brown, in those eggs with a bluish ground, to a dark brown, reddish-brown or inky brown. The secondary markings are equally large and of an inky grey character, showing up well and often giving the darker markings over them a violet or purplish tinge. Fifty eggs average 28.3×20.5 mm.: maxima 31.0×22.1 and 28.3×22.7 mm.; minima 26.1×20.2 mm.

Stewart says that this Tree-Pie often builds year after year either in the same tree or in one close to that containing the previous year's nest.

Dendrocitta formosæ.

THE HILL TREE-PIE.

(32) *Dendrocitta formosæ himalayensis* Blyth.

THE EASTERN HIMALAYAN TREE-PIE.

Dendrocitta formosæ himalayensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 53.

This Magpie breeds throughout the Himalayas from Nepal, through Sikkim, Assam, Manipur, all Northern Burma, to the Northern Kachin Hills and Shan States. In Assam, North of the Brahmapootra, it breeds regularly actually in the Plains, whilst in Eastern Lakkimpur it is a common breeding bird in the foot-hills up to an elevation of some 4,000 feet and straggles occasionally into the Plains as far as Dibrugarh, which is some 500 to 700 feet above sea-level and which, owing to the proximity of snow-capped mountains, has a fauna common to about 2,000 feet elsewhere. In Sikkim and Bhutan it is most common between 2,000 and 3,000 feet but, all through its range, ascends to about 5,000 feet and occasionally as high as 7,000. Gammie took many nests in Sikkim during May, June and July, whilst I have taken them containing fresh eggs from April to August in the various hill-ranges of Assam,

both North and South of the Brahmapootra, and in the Surrma Valley. Hodgson found eggs in June in Nepal, whilst Wardlaw-Ramsay took a clutch in the Karen Hills in April.

The nests, of which I have seen some hundreds, are made of fine twigs, coarse roots, tendrils and weed-stems, rather strongly intertwined, though the whole affair looks fragile. In some nests practically all the materials used are twigs and a few coarse roots but in others nothing else is used but the long elastic stems and tendrils of a *Convolvulus*-creeper, perhaps with a few finer roots as a rough lining. Many nests have no lining at all, nor have I ever seen any nests with a supporting platform such as is common to nearly all nests of *rufa*. In shape the nest is nearly always a shallow saucer with a very slight depression for the eggs; about one nest in every ten, however, is stouter in build, rather more bulky and with a comparatively deeper internal cup. In these nests leaves often form a component part of the fabric. In size the nests may be anything from 5 to 7 inches across by $1\frac{1}{2}$ to $2\frac{1}{2}$ inches deep, the internal saucer for the eggs being about $\frac{1}{2}$ to 1 inch in depth. In the more bulky, deeper nests the diameter is generally under 7 inches but the depth runs up to nearly 4 inches.

The site selected for the nest varies much. According to Gammie "It affects clear cultivated tracts, interspersed with a few standing shrubs and bamboo in which it builds," whilst elsewhere he adds it "is rarely found far from cultivated fields." In Assam Coltart, Inglis and I found it to be a bird of the forest, though generally haunting the more open, less humid parts of it. It is especially fond of the dense, but dry, secondary growth which springs up so rapidly in deserted cultivation, while they may also be found breeding in small patches of forest, more or less broken up by open plains. In North Lakkimpur Stevens found it common both in summer and winter in strips of forest surrounded on all sides by great tracts of grass-land, but in winter it undoubtedly comes far more into the open and may then be found near well-wooded villages.

Its nest is never placed at any great height from the ground. Probably four nests out of five are built in tall bushes and saplings between 8 and 20 feet from the ground. I have, however, found a few of them placed as high as 30 feet or so in big trees, while I have, on the other hand, taken them from tangles of briars and from clumps of stout weeds not 3 feet from the ground.

The eggs number three to five, the latter number quite exceptional. The ground-colour ranges from pale bluish or yellowish stone-colour to a rich yellowish cream, dull or bright buff, but buff eggs are few in number. The primary blotches are generally large and bold, numerous at the larger end, where they normally more or less coalesce to form caps or rings, and sparse elsewhere. In colour the blotches are a dark brown, frequently reddish or, rarely, tinged with olive. The secondary marks are of pale or dark inky often

blending with the primary ones. In some clutches the markings are smaller, paler and feebler, and in these they are sometimes more widely distributed over the smaller end. In shape they are broad ovals, occasionally rather longer. The texture is stout, fine and close and the surface usually shows a distinct gloss, sometimes highly developed. Two hundred eggs average 28.8×20.1 mm.: maxima 33.5×20.3 and 29.9×22.3 mm.; minima 24.6×19.3 and 26.2×19.2 mm.

(33) *Dendrocitta formosæ assimilis* Hume.

THE BURMESE HILL TREE-PIE.

Dendrocitta formosæ assimilis, Fauna B. I., Birds, 2nd ed. vol. viii, p. 595.

This race breeds in Burma in the hills and mountains everywhere South of the range of the preceding bird—that is to say, South of Arrakan—but extending into the South of the Chin and Kachin Hills and Shan States. It is also found in the Andamans, being not uncommon around Port Blair. Burmese birds, until one gets almost into Tenasserim, are somewhat intermediate, and in the 'Fauna' I included them in the Indian form. The birds, however, obtained by Hopwood, Grant and Mackenzie seem really nearer the Southern form, and I now place them with it, though one would almost be justified in admitting them into a third and intermediate race. It also breeds in some numbers in the Andamans. In this last-mentioned area eggs have only been taken in April but, elsewhere, it breeds from the middle of April to the end of June. The nest and its sites are described as similar to those of the Himalayan birds and the eggs cannot be distinguished from them. Mackenzie notes his nests as having been obtained in country varying from "fairly open jungle" to "dense humid forest." Apparently, like the last, bird it prefers to breed in glades on banks of streams and in other more open parts of heavy forest, coming more into the open and into cultivation during the winter.

Fifty-three eggs average 29.1×21.4 mm.: maxima 32.0×21.1 and 30.1×22.5 mm.; minima 25.5×20.25 and 29.0×19.5 mm.

The normal full clutch is three or four and the only clutch of five I have seen is one taken by Anderson in the Andamans.

(33 a) *Dendrocitta formosæ occidentalis* Ticehurst.

THE WESTERN HIMALAYAN TREE-PIE.

Dendrocitta formosæ occidentalis, Fauna B. I., Birds, 2nd ed. vol. viii, p. 595.

The Western race of the Himalayan Tree-Pie breeds from Kulu and the Mundi States where they are common (*fide* Whistler) and from Afghanistan to Garhwal. Captain Hutton found it common round about Mussoorie at some 5,000 feet elevation,

extending in smaller numbers some 2,000 feet higher. Whympers found them equally numerous round Naini Tal at about the same elevation.

Hutton found his nests with eggs in May, whilst Whympers obtained many nests during both April and May. He describes his nests as "loosely built flimsy saucers made either of twigs or loosely put together tendrils, placed in low trees in forest." Hutton, however, says that the nests he found at Mussoorie were "like those of *Urocissa occipitalis*, being composed externally of twigs and lined with finer materials, according to the situation; one nest, taken in a deep glen by the side of a stream, was lined with the long, fibrous leaves of the Mares'-tail (*Equisetum*) which grew abundantly by the water's edge; another taken much higher up on the hillside, and away from water, was lined with tendrils and fine roots. The nest is placed rather low, generally 8 or 10 feet from the ground, sometimes at the extremity of a horizontal branch, sometimes in the forks of young bushy oaks."

The eggs cannot be distinguished from those of the Eastern Himalayan Tree-Pie. Fifty average 28.1×21.5 mm.: maxima 31.1×22.4 mm.; minima 26.3×20.5 mm.

(34) *Dendrocitta frontalis* McClell.

THE BLACK-BROWED TREE-PIE.

Dendrocitta frontalis, Fauna B. I., Birds, 2nd ed. vol. i, p. 54.

The Black-browed Tree-Pie breeds from the end of April to July from Eastern Nepal to the extreme East and South of Assam into Manipur between 2,000 and 5,500 feet. Stevens found it in the Plains at the foot of the Miri Hills and also at Rangagora in the Winter, but it does not seem to breed in either place, though Coltart and I found it breeding sparingly at Margherita in Lakhimpur. Here we took two or three nests at about 1,000 feet altitude but it was much more common on the adjacent higher Patkoi hills above 3,000 feet. In the Khasia and Cachar Hills it is more common above than below 3,000 feet.

The only recorded full notes of this bird's breeding are those of my own in 'The Ibis' (Jan. 1895, p. 41), and to these I can add but little:—

"This handsome Magpie breeds freely (in Assam) on all ranges over 4,000 feet high. The nest is much like that of *D. himalayensis* but is, on an average, somewhat smaller. It is made of fine twigs and the stems of creepers and weeds, the last less invariably used than the two former. In nine cases out of ten there is practically no lining, but in two nests I have seen a scanty amount of mithna and goat's hair placed at the very bottom, and in a few others I have found a sort of rough lining of coarse fern-roots, the softer

stems of green weeds, or the finer roots of bamboos; always, however, the lining, if existing at all, is coarse and by no means abundant." The nest is in shape a shallow cup, rather flimsy and transparent, but more so in appearance than in reality, for, though one can always see through it, the materials are well intertwined and stand a great deal of rough handling before coming apart. The size of the nest ranges from under 5" to 7" in diameter, and the depth from 2" to 3·5" or rather more; nests measuring over 6·5" are rare, and the average is only about 6" outer diameter; the inner cup averages about 5" by 1".

"The nest is seldom built at any great height from the ground, generally below six feet, and often within two or three. It is placed in the fork of a bush, or small sapling, or even in a stout weed, and the situation preferred is one in scanty forest with a thin undergrowth of weeds and scraggy bushes. In *dense* evergreen forest I have never found the nest, though I have seen the birds, but I have taken two or three in the outskirts of evergreen forest where the trees were few and far between and the principal growth consisted of tall bushes and thick, low lime-bushes."

All I can now add to this account is that Dr. Coltart in Lakhimpur and I myself later on in Cachar and the Khasia Hills found a considerable number of nests in really dense evergreen forest. By evergreen we mean, of course, forest and jungle that is ever green and wet though the individual trees in it may be more or less deciduous.

The eggs are the most handsome, as a series, of all the *Dendrocittas*, although they are never of the salmon-ground and red-blotched type found with all the races of Indian Tree-Pie. Roughly speaking, they resemble thickly blotched dark eggs of the Himalayan Tree-Pie. The ground may be pale yellowish stone-colour, sometimes with a faint tinge of blue or green, pale buff, warm yellowish-buff or comparatively dark buff. The primary markings consist of rather large blotches of pale to rich umber-brown, in the buff eggs more reddish; the secondary markings are of pale lilac or lavender-grey. Both are numerous everywhere but more so at the larger end. A few clutches have the blotches restricted to a ring round the larger end and sparse elsewhere. The texture is strong and close but almost invariably glossless. In shape they are rather broad obtuse ovals, longer ovals with the small end somewhat compressed being not uncommon. One hundred eggs average $27\cdot0 \times 19\cdot9$ mm: maxima $29\cdot8 \times 21\cdot0$ and $28\cdot9 \times 23\cdot4$ mm.; minima $24\cdot5 \times 20\cdot2$ and $25\cdot0 \times 18\cdot6$ mm.

The breeding season extends from the beginning of April to the end of July and some birds may have two broods. They are *not* very close sitters and leave the nest some time before a human intruder gets close to it. They are also quiet undemonstrative birds near the nest and do not give it away by their noisy protests as do their nearest relatives.

(35) *Dendrocitta bayleyi* Tytler.

THE ANDAMAN TREE-PIE.

Dendrocitta bayleyi, Fauna B. I., Birds, 2nd ed. vol. i, p. 55.

Very little has been known of these birds breeding until comparatively recently. Eggs which were first sent me as of this bird proved to be those of the Burmese Hill-Pie which the taker did not know was found in the island. The only nests really authenticated are one taken by Osmaston, with three eggs, on the 27th May, 1907, and one taken by Messrs. Anderson and Wickham in May 1910. Osmaston describes the nest as "a flimsy cup-shaped structure of bents and fine sticks, lined rootlets, 15 feet from the ground in a small thickly foliaged sapling growing in forest."

All four eggs are exactly alike with a pale creamy-yellow ground with numerous small blotches of light brown and inky grey, rather denser at the larger end but in none forming a definite cup. In shape they are short broad ovals and they measure between 25.9×19.1 and 24.9×20.3 mm.

(36) *Crypsirhina temia* (Daudin).

THE BLACK RACKET-TAILED MAGPIE.

Crypsirhina varians, Fauna B. I., Birds, 2nd ed. vol. i, p. 56.

Crypsirhina temia, ibid. vol. vii, p. 8; vol. viii, p. 596.

This handsome little Magpie breeds from Thayetmyo and Tounghoo South to Sumatra, Java and Borneo, whilst East it extends to Siam and Cochin China. Oates found it very common in Pegu and describes its nesting habits as follows :—

"The nest is composed of fine dead twigs firmly woven together. The interior is lined with twisted tendrils of convolvulus and other creepers. The uniformity with which this material is used in all nests is remarkable. The inside diameter is 5 inches, and the depth only one, thus making the structure very flat. The exterior dimensions are not so definite, for the twigs and creepers stick out in all directions; but making all allowances, the outside diameter may be put down as 7 or 8 inches, and the total depth at $1\frac{1}{2}$ inches.

"This bird appears to lay from the 1st of June to the 15th of July; most of my nests were taken in the latter month. It selects either one of the outer branches of a very leafy thorny bush, or perhaps more commonly a branch of a bamboo, at heights varying from 5 to 20 feet."

In Siam, where Herbert took many nests, the breeding season extends from May to July, whilst he also found nests as early as April and as late as August. Herbert also comments on the way twisted tendrils of the convolvulus are always used as lining, a habit referred to by Mackenzie, Hopwood and Harington and all

others who have collected this bird's eggs. The Racket-tailed Magpies appear to be birds of open country, preferring bamboo-clumps or tall thorny bushes standing alone or in small clumps in open grass-land for nesting sites. One nest taken by Herbert was "just outside of thick jungle" and one or two from thorn-bushes growing in "scattered scrub jungle."

In Tavoy Mackenzie and Hopwood found them breeding in April, and there also they describe the sites selected most often as thorn-bushes or bamboos growing in small or large areas of open, grass-covered country.

According to Herbert the birds sit very close. He says it "is not very readily flushed off the nest, and will slip away quietly by running along the branches to an adjoining bush, and I have even known it remain in the same bush whilst I examined the nest" (Journ. Siam Nat. Hist. Soc. vol. vi, p. 91, 1923).

The eggs are typical little Magpie's eggs. The ground-colour is a very pale cream or buffy-white ranging to a warm, but dull, buff. In most eggs the blotches are rather large and freely scattered over the whole surface, though most numerous at the larger end. In a few eggs they form a cap and in one clutch they coalesce to form one huge irregular patch. In another clutch taken by Herbert the spots are sparse everywhere except in a broad definite ring at the larger extremity. The texture is fine, not very strong, and is glossless. In shape most eggs are broad, blunt ovals but a few are longer and more pointed.

Seventy-one eggs average 24.3×18.4 mm.: maxima 27.4×20.2 mm.; minima 22.0×18.3 and 22.3×17.2 mm.

(37) *Crypsirhina cucullata* Jerdon.

THE HOODED RACKET-TAILED MAGPIE.

Crypsirhina cucullata, Fauna B. I., Birds, 2nd-ed. vol. i, p. 57.

This little Magpie breeds in Central Burma, South to Tenasserim but, according to Kloss, is not found in the Malay Peninsula.

Very little as yet is known about its nidification, but Harington obtained its eggs, first through a collector and then personally at Monywa, on the Upper Chindwin, in May 1904, and later in May 1910 at Pymmana. *In epistola* he writes:—"I was unfortunately laid up when the birds were breeding but had marked down a bit of jungle where they were plentiful and got the Deputy Commissioner to send out, ordering the Head-man to collect for me, and I also gave him a skin and the Burmese name for the bird. They sent in two nests with branches complete and some eggs.

"The nests were very neat, made in some thorny tree, with a thorny foundation to the nest and sides going slightly over the lips of the nest proper, very like a miniature *P. rustica* (Magpie) inverted. The nest inside was very like a flimsy Bulbul's."

The only other known nest of this Magpie is one which Mackenzie took on the 14th July at Prome. The eggs are not distinguishable from those of the preceding bird, but the few I have average paler, and one clutch of four taken by Harington is more reddish.

Nine eggs average 22.5×17.0 mm. : maxima 25.1×18.3 mm. ; minima 22.8×17.2 mm.

So far as has been ascertained the birds place their nest at heights between 5 and 10 feet from the ground just as the preceding bird does, but, unlike that bird, prefers a bush or tree standing in some strip of forest or jungle rather than one standing in open grass-land.

(38) *Glenargus leucopterus* Temm.

THE WHITE-WINGED JAY.

Platysmurus leucopterus, Fauna B. I., Birds, 2nd ed. vol. i, p. 58.

Glenargus leucopterus, ibid. vol. vii, p. 8 ; ibid. viii, p. 596.

This curious Jay breeds from Tenasserim and peninsular Siam through the Malay States to Sumatra. Davison first obtained a nest "on the 8th of April at the Hot Springs at Ulu Langal. The nest was built on the frond of a *Calamus* the end of which rested in the fork of a small sapling. The nest was a great coarse structure like a Crow's, but even more coarsely and irregularly built, and with the egg-cavity shallower. It was composed externally of small branches and twigs, and loosely lined with coarse fibre and strips of bark. It contained two young birds about a couple of days old. The nest was placed about six feet from the ground. The surrounding jungle was moderately thick, with a good deal of undergrowth." Many years after this W. Partridge sent me two pairs of eggs, said to be of this Jay, taken from bulky nest of sticks and twigs, lined with roots and shredded bark. Both nests were built at about 8 feet from the ground, in high bushes, growing in secondary jungle. These two nests were taken on the 16th March and 19th May. No parent bird having been shot these eggs were placed on one side as doubtful, but between 1918 and 1920 Messrs. Hopwood and Mackenzie took several nests with eggs exactly like those taken by Partridge, when all doubts were set at rest.

All the nests are described as clumsy, bulky affairs made of twigs and branches lined with roots and tendrils etc., but one nest taken by Hopwood had the cup very neatly lined and rounded off with a few flowers of a *Vaccinium*. One nest also had bamboo and other leaves woven into the sticks and twigs of the outer part. Three nests were taken from Cane-brakes at heights of 4, 6, and 10 feet from the ground, whilst the fourth was built on a bamboo-branch about 6 feet up. The Cane-brakes were all in very dense, matted forest and jungle, the bamboo-clump in "open bamboo forest."

The breeding season seems to be from early March to the end of May, fresh and incubated eggs having been taken in each of these three months.

The eggs differ in size from those of the *Cissas*, or Green Magpies, already described and in being more dull in colour and practically without gloss. The ground-colour is a very pale yellowish stone stippled and minutely blotched all over with light yellowish-brown, numerous everywhere but even more so at the larger end. There are also tiny secondary blotches of light grey, though these must be looked for with a magnifying-glass. One set of eggs has a faint tinge of olive in the ground, whilst in one, a single egg, there is a distinct blue-green tint.

Fifteen eggs average 33.1×24.0 mm: maxima 35.0×23.0 and 33.1×24.7 mm.; minima 32.1×24.6 and 33.0×23.0 mm.

In shape the eggs are rather long true ovals; the texture is stout and close and the surface generally very slightly glossed.

(39) *Garrulus lanceolatus* Vigors.

THE BLACK-THROATED JAY.

Garrulus lanceolatus, Fauna B. I., Birds, 2nd ed. vol. i, p. 60.

The Black-throated Jay breeds during April, May and June from Chitral and Hazara to Nepal, including practically the whole of Kashmir proper, the Simla States and Garhwal, at all elevations from 4,000 to nearly 9,000 feet. It is extremely common round many hill-stations such as Murree, Mussoorie, Simla and Naini Tal, where they are most numerous between 5,000 and 7,000 feet.

Occasionally this Jay breeds actually inside forest but, as a rule, they select some small tree or sapling standing either alone or with others in comparatively open land, often in cultivated tracts. The favourite tree for building purposes, wherever this is found, seems to be the Oak, *Quercus incanus*, and, for choice, a small one in which the nest can be placed somewhere near the top, anything between 15 and 20 feet from the ground. They never seem to build in any of the evergreen coniferous trees, even where these form the majority growing, though all other kinds of trees are made use of, whilst Osmaston took a nest at Chakrata from a Rhododendron about 8 feet from the ground. No attempt appears to be made to conceal the nest and, often, when placed in a lightly foliated tree it is very conspicuous. At other times it may, of course, be also most completely hidden when the leaves are extra dense. Hutton says that in Mussoorie he sometimes found it built low down in thick bushes.

The nest is a deep cup rather loosely and untidily put together. The outer part is constructed of twigs, sometimes mixed with roots and coarse grasses. The lining is made of roots, rachides, fine fibre or rarely of stout and fine grass-stems, while one nest obtained

by Hume is said by him to have been made entirely of grass. Hume calls the nests moderately shallow cups, whilst nearly all other collectors say that it is rather deep. In comparison with the nests of some Magpies it is certainly deep, as most nests are a hemisphere or even deeper in proportion. An average nest would measure, externally and omitting all loose ends, about 6 inches by 3 in depth or rather more.

The eggs number three to five; Marshall says the usual clutch is five, Hutton says three or four, Rattray found four to be the normal clutch though five and three were sometimes incubated. Both Jones and Dodsworth often found three incubated eggs in nests in the Simla States.

The eggs are typical Jay's eggs and the range of variation small. The ground-colour is an olive-brown or olive-green, sometimes rather pale but generally dark compared with the colour of the ground in most Corvine eggs. The surface is stippled all over with freckles, generally most minute, less often becoming fairly well defined small blotches, of brown, which nearly always coalesce at the larger end to form a ring or small cap. Nearly always at this end also there are added a few twisted lines of black. In shape most eggs are true ovals, a little compressed at the smaller end, though broad blunt ovals are not uncommon.

Eighty-nine eggs average 28.8×22.0 mm. : maxima 32.0×22.1 and 28.6×24.5 mm. ; minima 26.1×21.0 and 27.8×20.0 mm.

Garrulus leucotis.

THE BLACK-CROWNED JAY.

(40) Garrulus leucotis leucotis Hume.

THE BURMESE BLACK-CROWNED JAY.

Garrulus leucotis, Fauna B. I., Birds, 2nd ed. vol. i, p. 61.

The Burmese Jay's breeding range extends from the hill ranges of Northern Burma, excluding the country between the Chindwin and Irrawaddy in the North and the whole of the Chin Hills, South through the mountains of the Shan States and Karenni to Tenasserim. It is very common in the Kachin Hills, especially round Monywa, though where this bird and Sharpe's Jay (*G. l. oatesi*) meet is doubtful. At Kindat, northwards, the latter bird is certainly the breeding resident and probably extends some way South of this, as it does in the Chin Hills, West of the Chindwin.

The great majority of eggs seem to be laid in April, Harington, Grant, Mackenzie and Hopwood finding nearly all their eggs in this month, but Grant took a full clutch of slightly set eggs on the 26th March, 1917, whilst Osmaston took another similar set on the 4th May, 1915.

Colonel (then Capt.) Harington gives an excellent account of this bird's nesting in the 'Journal of the Bombay Natural History Society' (vol. xx, p. 1002):—

"During former visits to Maymyo in the non-breeding season, I found the Burmese Jay to be very plentiful in certain parts of the jungle and so always had hopes when opportunity occurred of procuring their eggs, and during my last visit my hopes were realized beyond expectation.

"On the 13th April at Thundoung, the last stage into Maymyo, I made my first attempt at birds' nesting In the same bit of jungle I was fortunate in finding my first nest of the Burmese Jay, *G. leucotis*, with the parent bird sitting very tight, in fact not moving until my man began to climb the sapling. The nest was placed about 10 feet from the ground and was very conspicuous, and contained four incubated eggs, two of which were addled.

"On the 30th April we made an early start in that direction [Maymyo] trying some likely oak jungle with hopes of finding a Jay's nest. We were soon rewarded, first by seeing a Jay, and then two or three old nests. Then at last my orderly spotted a nest on which the old bird was sitting, which on investigation contained a nice clutch of four eggs. On resuming our hunt we were rewarded by finding another nest close by which contained three eggs. We found two more nests in the same patch of forest, each having two eggs apiece. These we left in the hope of getting complete clutches. Of these four nests three were in saplings from 10 to 12 feet high and the fourth was placed on a stump not 4 feet high.

"On the afternoon of the next day I again visited the same jungle and found two more nests, each containing five eggs, and another with three young birds. It was most extraordinary finding seven nests all within an area of about 100 square yards, one or two being within 20 yards of one another; showing that *G. leucotis* when unmolested breeds in communities; also in every case except one the parent bird had to be driven off the nest.

"The nests consisted of a rough outline of coarse twigs, containing a compact cup-shaped lining made entirely of grass, which measured about 6 inches in diameter by about 5 in depth. Four nests were placed in saplings from 10 to 12 feet from the ground, one on a stump, and others on branches of trees from 5 to 10 feet from the ground.

"Nests containing incubated eggs were found of two, three, four and five clutches, showing the bird to be irregular; one nest contained five addled eggs and in many of the others one or two addled eggs were found."

The nests and eggs of this Jay were subsequently taken in some numbers by other collectors in Maymyo and its surrounding country. Mackenzie, Hopwood, Grant and Wickham took or saw many nests and all these confirm what Harington says about their breeding in company. In fact, as Hopwood says, to find

one nest probably means that "with a little care one can find all one wants, half a dozen nests or more."

The favourite site is undoubtedly a sapling Oak 15 to 20 feet high standing in patches of forest with a certain amount of open country round about, either cultivated or grass-land. Some of these patches of jungle may be a mile or so long and nearly as broad, others may be quite small spinnies not 200 yards across either way. On the whole the smaller patches seem to be preferred to the larger though occasional nests may be taken in really deep forest. Osmaston describes the woods in which he found the nest as "mixed forest of oak, chestnut etc., not always open but not very dense."

The full clutch of eggs is probably four or five, but vermin, more especially bird-thieves, are so plentiful in Burma that eggs disappear from nests in the most extraordinary way.

In appearance the eggs are quite typical Jay's eggs, the ground-colour a pale green-grey or green-blue, in some slightly tinged with yellowish, in a few with brownish-yellow. The whole surface is stippled all over with minute specks of olive-brown or light brown, often so numerous and fine as to make the egg appear to be unicoloured olive- or sage-green. In other eggs the specks are larger and not quite so numerous, while in a very few they are large enough to show up as distinct though smudgy blotches on a lighter ground. Occasionally a set with the yellowish ground-colour may appear to be pale uniform clay-brown rather than olive-green, and one very beautiful clutch taken by Mackenzie is of this type with dark brown caps where the marks have coalesced. Secondary markings, if they exist, are indistinguishable, but many eggs have one or two lines of black at the larger end, very superficial in character and very liable to be washed off.

Eighty eggs average 32.5×23.2 mm.: maxima 35.6×24.0 and 35.0×25.0 mm.; minima 28.5×22.25 mm.

The texture is rather fine and close and the surface smooth but glossless or nearly so.

(41) *Garrulus leucotis oatesi* Sharpe.

SHARPE'S JAY, OR THE STREAK-CROWNED JAY.

Garrulus leucotis oatesi, Fauna B. I., Birds, 2nd ed. vol. i, p. 62.

This Jay is found throughout the Chin Hills from the extreme North to the Lushai Hills and Manipur, certainly occurring within the latter State (Mackenzie), whilst South it extends to the hills of Arrakan. In the Inter Chindwin-Irrawaddy area it appears to be found from the extreme North to the South, probably about half-way between Kindat and Monywa, where it meets the preceding race. Wherever found it seems to be resident, breeding freely between about 3,500 and 6,000 feet, perhaps up to 7,000 feet or even higher.

Mackenzie, who took a fine series of this bird's eggs in the Chin Hills, describes the nest, the site and the eggs as all being very similar to those of the Burmese Jay, though it seems to haunt wilder, more rugged country. Repeatedly the nest taken by him is described in his notes as being built on the small oak trees growing "on a steep hill-side" or "in very difficult country on hill-side," or in similar terms. Although most nests are made of twigs and are in many instances compact fairly deep cups, Mackenzie describes one exceptional nest as "a shallow saucer in a low tree in scrub jungle on a steep hill-side, about 10 feet up, made entirely of roots with a few scraps of moss outside. Dimensions $6'' \times 2\frac{3}{4}''$ externally and $4\frac{1}{2}'' \times 2''$ inside. Elevation 4,000 feet." Off this nest Mackenzie shot two birds, the surviving bird in the first instance getting a new mate and continuing to use the same nest!

They breed in colonies just as the Burmese birds do and Mackenzie on one occasion took three nests, each with four eggs, from the same patch of scrub-forest on the same day.

April and May seem to be the two months in which they breed.

Individual eggs or clutches cannot be distinguished from those of the Burmese Jay but, as a whole, they are very distinctly browner and less olive-green in tone. One clutch taken by Mackenzie has a yellow-stone ground-colour, the reddish-brown freckles, numerous everywhere, running into one another and forming broad rings at the extreme larger ends.

Forty-four eggs average 30.46×22.31 mm. : maxima 33.5×23.6 mm. ; minima 26.75×21.6 mm.

Garrulus bispecularis.

THE RED-CROWNED JAY.

(42) *Garrulus bispecularis bispecularis* Vigors.

THE WESTERN HIMALAYAN RED-CROWNED JAY.

Garrulus bispecularis bispecularis, Fauna B. I., Birds, 2nd ed. vol. i, p. 63.

The Himalayan Jay breeds throughout the outer Himalayas from Kumaon and Cashmere to Garhwal and Nepal between 3,000 and 7,000 feet or higher. Rattray prior to 1904 found but one nest round Murree itself though he took numerous nests in the Changla and Danga-galis; later he took several nests near Murree. In Kashmir it cannot be common. Ward obtained it at Sarai Poonch, 8,000 feet, in April and September and records it as breeding in the outer Ranges; but other breeding records are almost nil. In the Simla States and Garhwal it is a common breeder up to 7,000 feet and over.

The breeding season is from the middle of April to the end of June, the earliest eggs in my own collection were taken on the 10th April (Danga-gali) and the latest on the 30th June (Murree).

The nest seems to vary considerably. Sometimes it is described as "large and jay-like, made of twigs and fine grasses, cup-shaped and roughly built" (Rattray). Marshall took a nest which was "of loose construction, made of twigs and fibre," whilst his brother gives a more detailed description of another as follows:—"It was on a horizontal branch of a large oak, at a bifurcation about eight feet from the trunk and about the same from the ground. The nest was more substantial than that of *G. lanceolatus*, much more moss having been used in the outer casing, but the lining was similar. It was a mis-shapen nest, and appeared, in the distance, like an old deserted one. Another nest I found on the 2nd June was much neater in construction and better concealed than the former one; it was in a rhododendron tree, in a bend about ten feet from the ground, between two branches upwards of a foot each in diameter, and covered with moss and dead fern. The tree grew out of a precipitous bank just below the road, and though the nest was on the level of the edge, it was almost impossible to detect it; it was a very compact, thick cup of roots covered with moss outside. Both nests were at about 7,000 feet elevation and both birds sat very close."

A. E. Jones, in notes accompanying eggs sent home from Simla, describes the nests as "snug" well built cups of fine twigs almost invariably much mixed with green moss, a feature which would suffice to distinguish it from the nests of the Black-throated Jay or the Burmese Jay. The lining found most often by Jones consisted of rootlets and rhizomorph. Although some nests, like Marshall's described above and one found by Jones 18 feet up in a Holly-tree, may be hard to find, others are frequently built in quite conspicuous positions in the smaller, topmost branches of saplings. Occasionally nests may be found by roadsides or in more or less open spaces, but most are built in forest, often dense, of mixed Oak, Chestnut, Firs and other trees.

Four or five eggs seem to form the normal clutch but three only are sometimes incubated.

As a whole they differ from those of the Black-throated Jay in being comparatively broader eggs or, perhaps, less compressed at their smaller ends, whilst the markings are better defined blotches rather than stippling over the whole surface. Many eggs have the ground-colour a greyish-yellow, the surface thickly strewn with small blotches of greyish-brown; such specimens very seldom occur among the eggs of the Black-throated Jay. At the same time I have other clutches which could not be distinguished from those of that bird, having the same uniform olive-green appearance.

Eighty eggs average 28.4×22.1 mm.: maxima 32.8×22.2 and 29.5×23.1 mm.; minima 23.2×21.9 and 28.1×20.2 mm.

The average size of the eggs in my series is considerably reduced by the inclusion of three clutches which are probably unusually small.

Hume's series of twelve eggs average 29.2×23.5 mm., and probably give a truer average size than my larger one.

(44) *Garrulus bispecularis persaturatus* Hartert.

THE KHASIA HILLS RED-CROWNED JAY.

Garrulus bispecularis persaturatus, Fauna B. I., Birds, 2nd ed. vol. i, p. 65.

About this Jay very little is known. It breeds sparingly only in the Khasia Hills, Naga Hills and possibly East to the Patkoi Hills, South of the Brahmapootra. It also occurs in some of the higher ranges of Manipur but does not extend, so far as is recorded at present, into the Chin Hills.

So far as I know this Jay does not breed below 6,000 feet or thereabouts in the Khasia Hills. Here it lays during May and June, and the only four nests taken by myself or my Khasia collectors have all been in a very dense humid strip of forest, containing principally stunted Oak-trees, Rhododendrons and, in patches, a few Pines (*Pinus khasiana*). The undergrowth also was very dense but broken up by the many huge boulders and rocks which thrust themselves up from the steep side of the ridge. In 1905-6 and 1907 I saw one nest each year, but after I left India only one or two more nests have been taken, probably the search for them necessitating too much hard work for too small a result. Three of the nests were placed among the topmost branches of small Oaks between 8 and 18 feet from the ground, whilst a fourth was built in a Rhododendron about 20 feet up. The latter was well concealed by the dense foliage, the others very conspicuous when one got close to the trees. The birds were very noisy when disturbed but sat until the trees were struck.

The eggs of these four nests, 2, 2, 3 and 4 respectively, the second being addled in a nest with two young, cannot be distinguished from those of the preceding race.

Twelve eggs average 29.6×22.2 mm.: maxima 31.1×21.3 and 28.3×23.1 mm.; minima 28.0×21.9 and 29.9×21.2 mm.

(45) *Garrulus bispecularis haringtoni* Rippon.

RIPPON'S CHIN HILLS RED-CROWNED JAY.

Garrulus bispecularis haringtoni, Fauna B. I., Birds, 2nd ed. vol. ii, p. 65.

This Jay is confined to the South of the Chin Hills and also enters the South-West of the Kachin Hills.

The only note on its nidification is that of K. C. Macdonald (Journ. Bomb. Nat. Hist. Soc. vol. xvii, p. 184, 1906):—

“I found a nest belonging to a pair of these birds on Popa on the 5th of April. It was in a sapling about 20 feet from the ground and contained three young ones and one hard set egg. The parents were very noisy when I approached the nest and gave away its existence. There are a few pairs of birds on Popa, but I think nowhere else in the district.”

The nest and eggs were also said to have been taken on Mt. Victoria but I have never been able to obtain any details of this occurrence.

Nucifraga caryocatactes.

THE NUTCRACKER.

(46) *Nucifraga caryocatactes hemispila* Vigors.

THE HIMALAYAN NUTCRACKER.

Nucifraga caryocatactes hemispila, Fauna B. I., Birds, 2nd ed. vol. i, p. 66.

This bird breeds throughout the Himalayas from the extreme North-West, through Kuman, Simla States, Garhwal, into Nepal, Sikkim, Bhutan and Tibet.

There are very few records of this bird's nidification. Hume found a nest with three newly fledged young ones near Fagoo (Simla) on the 11th May:—“The tree where I found the nest was situated on a steeply sloping hill facing the South, at an elevation of about 6,500 feet. The nest was about 50 feet from the ground and placed on two side branches just where, about six inches apart, they shot out from the side of the trunk. The nest was just like a Crow's, a broad platform of sticks, but rather more neatly built, and with a number of green juniper twigs and a good deal of grey lichen intermingled. The nest was about 11 inches across and about 4 inches in external height. There was a broad, shallow, central depression 5 or 6 inches in diameter and perhaps 2 inches in depth, of which an inch was filled in with a profuse lining of grass and fir-needles.”

Mr. A. E. Jones writes (Journ. Bomb. Nat. Hist. Soc. vol. xxvi, p. 603):—“A nest I found on the 10th March, 1917, containing two young about five days old and an added egg, was placed about 22 feet from the ground in a Deodar tree. It was supported by two horizontal branches where they sprang from the main stem. In appearance it resembled a Jay's, but the exterior had, beside the twigs, a certain amount of lichen and dry Oak (*Q. dilatata*) leaves incorporated in it. Lined with dry grass, moss, lichen and fur. It measured externally 8 inches wide by 4 inches deep. Inside breadth 4 inches by 2½ deep.”

Later, in a note to me, he adds:—“This nest was taken at

7,500 feet in the Koti State. The tree in which it was placed was growing in mixed forest on a steep hill side facing East." Two clutches of this bird's eggs were sent to me by D. MacDonald from Gyantse, but I afterwards ascertained that they were taken from the North of the Chambi Valley in Sikkim. Of the four eggs three were smashed and of the three set all arrived in bits. They were said to have been taken from nests from which the first laying had been previously taken on the 5th March and eaten. They had fresh eggs again on the 30th April. Both nests were built in Deodar-trees, and the eggs sent exactly resembled those already described.

Whymper also found a nest of the Nutcracker being rifled by Crows in Tekri, Garhwal, at between 11,000 and 13,000 feet. A man sent up the tree was in time to rescue one of the eggs. The nest was found on May the 16th, when Whymper notes that all other clutches of Nutcrackers, which were common, had hatched out.

The eggs in colour are a very pale bluish-white with a few blotches and more numerous specks of dull brown and inky brown scattered over the whole surface, slightly more numerous at the larger than the smaller end. The two eggs measure 35.0×26.3 and 36.2×27.2 mm.

(47) *Nucifraga multipunctata* Gould.

THE LARGER-SPOTTED NUTCRACKER.

Nucifraga multipunctata, Fauna B. I., Birds, 2nd ed. vol. i, p. 67.

This Nutcracker seems to breed over almost the same area as the last. Some authorities consider the birds to be two dimorphic forms of one and the same species, others that they are races of one species. The first is impossible, for the two forms not only disagree in coloration but also in size; the latter is impossible because you cannot have two subspecies breeding in the same area.

Ward records this form as common in Kashmir. Fulton obtained a specimen in the Patteson Valley on the N.W. Frontier at 7,000 feet; it occurs in the better wooded parts of Ladak next to Kashmir and, finally, three skins were sent me from the Chambi Valley in Sikkim.

I can trace no records of its nidification but MacDonald sent me three skins with three clutches of eggs which were obtained in the extreme North of the Chambi Valley by his son. The skins, although only battered remnants, sufficed to show that they were very definitely this species. They were taken between the 3rd May and 6th June and were all, according to the natives who showed the nests, second layings at an elevation not less than 9,000 feet and probably considerably higher. The nests were all on coniferous trees, two described as "Firs" and one as "a kind of Deodar." The

only nest sent was a quite compact, well-made nest of twigs, lichen, roots and coarse fibre lined thickly with pine-needles, grass and one or two scraps of moss. The nest was too flattened down in its box to measure accurately but must have been about 10 inches across. It was said to have been "very high up in the tree."

The eggs differ very greatly from the two described for the preceding bird. Two clutches have the ground pale blue as in the eggs of that bird but the marks are all small blots and specks of brown with others, similar in shape and size, underlying them of pale grey. The third clutch differs in having no blue in the ground-colour and is more densely marked.

Ten eggs average 32.8×25.4 mm.: maxima 34.8×23.8 and 33.3×25.9 mm.; minima 30.6×24.1 and 34.8×23.8 mm.

***Pyrrhonorax pyrrhonorax*.**

THE RED-BILLED CHOUGH.

(48) *Pyrrhonorax pyrrhonorax himalayanus* (Gould).

THE EASTERN RED-BILLED CHOUGH.

Pyrrhonorax pyrrhonorax, Fauna B. I., Birds, 2nd ed. vol. i, p. 68.

In its restricted form this Chough breeds within our limits throughout the Himalayas from the North-West Frontier to Tibet. They are early breeders and some birds have eggs in March, but the great majority breed in April and May. Since Mandelli took the first known eggs of this race of Chough from under the eaves of a high wooden house in Chambi many field naturalists and others have visited their breeding haunts and taken nests and eggs.

Ward was, perhaps, the first to take their eggs in Kashmir, securing some clutches laid in holes in the sandstone cliffs in the Liddar Valley at 12,000 feet. Whymper took them in Garhwal between 9,000 and 12,000 feet, while Osmaston took others again at Leh, 11,600 feet. Ludlow (Ibis, 1928, p. 53) gives an interesting and complete account of its nidification in Tibet:—

"Another exceedingly common bird both at Gyantse and in the Chambi Valley, breeding plentifully in both localities. Nest construction begins in March, and eggs are to be found in April and May. Sometimes the nests are situated in an inaccessible cliff, sometimes in holes in the walls of inhabited and uninhabited houses only a few feet from the ground. At times the birds will be found breeding in colonies, at other times only solitary nests will be found. It will construct its nest in the most secluded spot imaginable, or right in the midst of a village. Frequently the same site is occupied year after year. The nest is made of sticks and twigs and lined with wool. Three or four constitutes the normal clutch."

As a rule the bird selects natural holes in cliffs in which to nest but sometimes they excavate one for themselves. Osmaston records a nest, a thick matted pad of wool and hair with no sticks, placed in a hole 20 feet from the ground in soft sandstone which he believed the birds had dug out for themselves. The hole was about 2 feet deep.

Steen and Kennedy were the first to take eggs round Gyantse and I have a fine series collected by them and by D. Macdonald much later. Their accounts corroborate those of Ludlow but add little to it. Kennedy describes one colony of "hundreds of birds, but very scattered in a high cliff, most of the nests quite un-get-atable."

Occasionally the Chough lays five eggs as I have two such clutches in my collection taken by Macdonald and obviously all five laid by the same bird, but three seems to be the number most often laid.

The ground-colour grades from almost pure white with the faintest blue or green tinge to a pale rather dull pinky-white. The primary blotches are generally fairly large and light reddish or umber-brown to a rather dark brown in colour; the secondary marks are of lavender- or inky-grey and are as numerous as the primary. They are scattered pretty thickly over the whole surface, in some eggs very thickly, in a few more scantily. In one or two clutches they form a ring round the larger end of the egg.

Fifty eggs average 41.7×28.4 mm.: maxima 46.3×30.5 mm.; minima 37.5×27.5 and 38.3×27.3 mm.

(49) *Pyrrhocorax graculus* Linn.

THE YELLOW-BILLED CHOUGH.

Pyrrhocorax graculus, Fauna B. I., Birds, 2nd ed. vol. i, p. 70.

The Indian bird has been separated as *P. forsythi* by Stoliczka, and the separation is accepted by some systematists. The following notes will, therefore, only be such as refer to that form.

It breeds undoubtedly all through the Himalayas, from Kohat to Central and South-East Tibet and Sikkim. It is a bird of lofty elevations between 10,000 and 15,000 feet and Ward obtained their eggs from the Liddar Valley and from Leh. In Tibet it undoubtedly must breed, for it was seen by Ludlow at Yatung and also by the Everest Expedition. In Ladak and Sikkim they were seen by Meinertzhagen though in smaller numbers than the preceding bird. In Chitral Fulton found them very common up to 16,000 feet.

Notes on the nidification are very scarce and I can find none beyond the two records of two nests taken by Ward, one of which was placed in the roof of a house and one taken from a great colony breeding in holes in a high cliff in the Liddar Valley on the 22nd of

May. In the latter instance "the one nest taken was all that could be got at."

The few eggs I have seen of this race, including some from Naryn in Turkestan, could not be distinguished from those of the Red-billed Chough, though the ground-colour is still paler on an average, and they are somewhat smaller.

Twenty-three eggs average 39.0×28.5 mm. : maxima 43.3×27.0 and 37.1×27.7 mm. ; minima 35.8×26.9 and 41.0×25.4 mm.

The breeding season is April and May in Turkestan and May and June in Kashmir.

(50) *Podoces humilis* Hume.

HUME'S GROUND-CHOUGH.

Podoces humilis, Fauna B. I., Birds, 2nd ed. vol. i, p. 71.

This curious bird breeds from Yarkand to Tibet, Koko Nur and Kansu.

The first person to take their eggs appears to have been Capt. R. Steen, and eggs sent by him to Dresser are described in 'The Ibis,' 1906, p. 344. The accompanying note by Steen is as follows:—

"These birds breed in June and July; a nest found on the 1st July contained 3 young birds and one egg, while others found in July contained young birds. They are sometimes seen away from the localities inhabited by the little mouse-hares, but are generally associated with them. They dig holes for themselves in which they place their nests and do not make use of the holes of the mouse-hare, as does *Montifringilla mandellii*. The nest hole, excavated in the side of a nullah about 18 inches below the top, is straight and narrow until the nesting chamber is reached, too narrow for the hand to enter. At the end a considerable cavity is excavated, in which the abnormally large nest is placed, and this chamber varies in distance from the entrance from three to twelve feet. The nest is large, as much as fifteen inches in diameter, and consists of a loosely woven mass of grass, roots, moss, hair and wool, with no particular lining. The number of eggs laid varies from three to five."

Ludlow gives a very similar description of the nest (Ibis, 1928, p. 55) but adds: "It breeds everywhere between Phari and Gyantse, sometimes in a bank, sometimes on hill slopes and sometimes in small 'bunds,' separating the barley fields. . . . Nest construction starts in May and eggs may be found in June and July. Two clutches which I obtained each contained six eggs."

Six eggs in a clutch are probably unusual. Stein took thirty-eight eggs, many incubated, and since then I have received many clutches from Kennedy, Mackintosh, Macdonald and others but have never had more than four in a clutch and often three which were incubated.

Occasionally also they make use of a burrow of a mouse-hare, though this may be exceptional.

The eggs are pure white, close and fine in texture and fairly glossy. In shape they are true ovals but with the small end slightly compressed.

Thirty-two eggs average 22.9×16.4 mm.: maxima 24.4×17.3 mm.; minima 21.3×16.0 mm.

My earliest eggs were taken on the 12th of May; the latest appear to be four eggs taken by Steen on the 17th July.

Family PARIDÆ.

Parus major.

THE GREAT TIT.

(51) **Parus major cinereus Vieill.**

THE INDIAN GREY TIT.

Parus major cinereus, Fauna B. I., Birds, 2nd ed. vol. i, p. 74.

This Titmouse breeds throughout its range, which is practically all Northern India, Assam, and Western Burma, in hills and hilly country from the foot of the hills up to 5,000 feet commonly and 7,000 feet frequently.

The nidification of this little bird is well known to every egg-collector or bird-watcher. The nest is always placed in a hole of some sort but the situation varies to the most extraordinary extent. I have myself taken it from tiny holes low down and high up in all sizes of trees, sometimes in the trunk itself, sometimes in a branch. Generally the hole is self-made or is finished off and neatly rounded about the entrance, at other times it is in a natural hollow and is untouched by the birds, whilst at other times again they will occupy the deserted nest of a Barbet or Woodpecker. It often builds its comfortable little nest in posts or walls in buildings and once I took it from a hole in a thatched roof made the previous year by sparrows. Occasionally a nest may be placed in a bank or among the roots of a tree. These nests are rare; on the other hand nests in between the stones of walls are very common and in the Khasia Hills, where this Tit is numerous, four out of five nests will be found in the last position. Now and then a hole in a semi-decayed bamboo is considered suitable for a nest, more especially so if these form part of the supports or roof of an outhouse or stable.

The nest itself seems to vary but little. The base is nearly always of moss, a pad one inch to four inches deep. This may sometimes be mixed with a few feathers, a little grass or lichen or some other material but, often, it is of moss alone. Over this

is built another soft pad of fur anything up to 2 inches deep. Here again, whilst fur is generally used alone, feathers and hair are sometimes mixed with the fur and, more rarely, vegetable down and wool.

Occasionally nests are not placed *in* holes. Mr. E. C. Buck found one built on a branch of a tree and Hume obtained another of which he writes :—

“The only nest I have myself seen in such a position was a pretty large pad of soft moss, slightly saucer-shaped, about four inches in diameter, with a slight depression on the upper surface, which was everywhere thinly lined with sheep’s wool and the fine white silky hair of some animal.” Hume adds that he believes the hair and fur of the nest is obtained by the birds “from the dung of cats, pole-cats and ferrets so common in our Hills.”

The nest is made to fit well into the hole and, if this is big, it sometimes takes a mass of material, but the cup itself is always tiny, neat and very compact, measuring a couple of inches across and varying from one to two in depth.

It is a confiding bold little bird and in Burma Wickham found it took readily to nesting-boxes in his garden. I have known it nest in a tiny hole about 4 feet up in a tree forming one of an avenue on a main road in Dibrugarh town, entering and leaving the hole without fear of passers-by. When making use of inhabited houses it takes little notice of the occupiers, though it may resent close inspection, showing its anger by a fierce hissing and the biting of any finger of enquiry which may be inserted into its home. Wherever it builds its nest it almost invariably refuses to leave it until literally pushed off, when once incubation has commenced. They breed from March to June and many birds have two broods even in the higher hills. In the hills South of the Brahmapootra I have taken fresh eggs from the 23rd March to the 15th August.

The normal clutch of eggs is five or six, sometimes four, and I have seen as many as nine in a clutch. In appearance they are, of course, just like the eggs of the English Great Tit. The ground-colour is white, with the faintest pink tinge imaginable in most, rather stronger in others; the markings are dark red or brownish-red and these are generally scattered freely over the whole surface and still more numerous at the larger end. In character they range from specks, small, yet distinct, in some eggs, to fair-sized blotches in other eggs. In a few clutches the markings are very bold and large and in a few others they are much more numerous at the larger and less so at the smaller end. One clutch of four in my collection are pure white with a dense narrow ring of deep brownish-red round the larger end. In shape the eggs are broad blunt ovals; the texture is fine and close, the shell stout for so small an egg and the surface often rather glossy.

One hundred eggs average 17.0×13.3 mm : maxima 18.6×13.2 and 16.5×14.0 mm. ; minima 16.1×12.7 and 17.0×12.3 mm.

(52) *Parus major ziarátensis* Whistler.'

THE AFGHAN GREY TIT.

Parus major intermedius, Fauna B. I., Birds, 2nd ed. vol. i, p. 76. (See Whistler, Bull. B. O. C. vol. 1, p. 6, 1929.)

Within our limits the only record of these Tits breeding is that of Whitehead (Ibis, Jan. 1909, p. 106), who writes of its occurrence in his "Birds of Kohat and Kurram":—

"A very common visitor to the district from mid-September till about the third week in April. A resident on the Samana above 5,000 feet. Nest in the Ilex scrub of the Upper Kurram in some numbers."

A clutch of four eggs taken by Whitehead are recorded in his note book as "c/4 *Parus atriceps*, nest in hole in Ilex stump, Kalhutti, Baluchistan."

In 1914 Col. Harington obtained a clutch of six eggs on the 6th of June from a nest built in the wall of a bungalow at Makandie, Khagan Valley, I believe at about 6,000 feet.

The eggs are indistinguishable from those of the Indian Grey Tit.

Fourteen eggs average 17.4×12.9 mm.: maxima 18.7×13.9 mm.; minima 15.2×12.1 mm.

(53) *Parus major caschmiriensis* Hartert.

THE KASHMIR GREY TIT.

Parus major kaschmiriensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 76.

The Kashmir Grey Tit breeds commonly throughout Kashmir, Garhwal, the Simla States and Hills of the North-West. About the higher hills around Naini Tal Whymper found this Tit breeding early in April, taking nests containing six, five and six eggs respectively on the 2nd, 5th and 6th of that month; in Kashmir, however, May and June seem to be the regular months and Jones also found them breeding during the latter month at Kasauli and in the Simla States.

The nest and eggs of this race do not differ from those of the Northern Indian Grey Tit already described, but when series of all the different races are examined side by side the eggs of this Northern Tit are seen to be more richly and boldly marked than any of the others. The nest is placed in an equally great variety of places and, like the Indian Grey Tit, it seems to have a special affection for holes between the stones of retaining walls.

Four to six is the usual normal clutch but the latter number is often exceeded. Osmaston took clutches of seven and eight in Kashmir, both from nests in Kingfishers' deserted nesting burrows in the sides of a pit near a village. In a note Osmaston says: "Old Kingfisher's nest holes are commonly used by this Tit around Srinagar, more often even than holes in trees or walls."



PARUS MAJOR MAHRATTARUM.

The Southern Grey Tit.

(Kotagiri, Nilgiri Hills, 26.4.25.)

An interesting account of this Tit building two nests close together is given by Whistler (*Journ. Bomb. Nat. Hist. Soc.* vol. xxix, p. 837). The two nests were built side by side under the coping-stones of a wall, the one nest containing four partly incubated eggs, the second nest, on which the bird was sitting, one egg only.

One hundred eggs average 17.2×13.4 mm. : maxima 20.1×13.6 and 19.5×14.5 mm. : minima 16.3×12.1 mm.

(55) *Parus major mahrattarum* Hartert.

THE SOUTHERN GREY TIT.

Parus major mahrattarum, Fauna B. I., Birds, 2nd ed. vol. i, p. 77.

The Southern Grey Tit has the widest range of all the races of the Grey Tit. It is found breeding over the whole of Southern India and Ceylon wherever there are hills of 3,000 feet or over. It is the common form of Tit in the North of the Bombay Presidency and from thence extends across East to Chota Nagpore and parts of Western Bengal.

The nesting season is very prolonged and in some parts they undoubtedly breed twice.

In Ceylon Tunnard found them breeding in March and again in September; Aitkin found them breeding during May and June at Poona, whilst in the same place Betham took and saw many nests in July and August. In the Nilgiris the principal months are February and March according to Miss Cockburn, but this lady also found a nest with young on the 10th November. Bates has photographs of nests taken in the Nilgiris in April, Major C. Williams obtained nests at Wellington in March, whilst, finally, A. M. Primrose took a clutch of four fresh eggs at Ooty on the 13th May.

The nests and their sites differ only as already described from those of the Northern Indian birds but, it should be noted, that Davison says they breed commonly in rat-holes in banks and he remarks that every nest he has seen was composed of hair collected from the droppings of wild cats.

The number of eggs in a clutch varies from three to five, six with this race being quite exceptional. They are not in any way distinguishable from those of the forms already described.

Fifty-four eggs average 17.5×13.6 mm. : maxima 19.3×14.0 mm.; minima 15.8×12.8 and 17.3×12.6 mm.

(56) *Parus major tibetanus* Hartert.

THE TIBET GREAT TIT.

Parus major tibetanus, Fauna B. I., Birds, 2nd ed. vol. i, p. 78.

Walton described this Tit as very common in Tibet but, since his time, it has almost disappeared from the Gyantse Plain owing

to the great destruction of tree-growth. None of my correspondents has managed to get a nest until in 1917 Macdonald sent me a clutch of four eggs, evidently fresh, taken on the 18th of May that year. Remnants of a skin showing the very green back and the yellow underparts sufficed to show the race to which it belonged. The nest is described as "a pad of wool and fur in a small natural hole in a Willow-tree."

The eggs are quite typical of the species and measure about 18.8×13.5 mm.

(57) *Parus major commixtus* Swinhoe.

THE BURMESE GREAT TIT.

Parus major commixtus, Fauna B. I., Birds, 2nd ed. vol i, p. 78.

This race of Great Tit is found throughout Eastern and South Burma, Siam, the Shan States and South China. In Assam South of the Brahmapootra the birds are intermediate between the Burmese and Northern Indian forms but specimens from the Chin Hills and Arrakan Yomas are more definitely referable to this subspecies.

In the Pegu and Arrakan Yomas, or ranges of hills, they seem to breed from February to April, whilst in the Kachin Hills most eggs are laid in April and May. In China Staff-Surgeon Jones obtained eggs in March and May.

The nesting holes seem to be more consistently those in trees than is the case with the other races, nests in buildings being rare. On the other hand the bird readily adopted nesting-boxes provided by Wickham for them in his garden in Burma.

They lay from four to seven eggs, the latter exceptional in Burma but common in China.

Seventy-five eggs average 16.8×12.9 mm. : maxima 18.6×12.5 and 17.3×13.7 mm. ; minima 15.2×12.9 and 16.1×12.1 mm.

Parus monticolus.

THE GREEN-BACKED TIT.

(59) *Parus monticolus monticolus* Vigors.

THE SIMLA GREEN-BACKED TIT.

Parus monticolus monticolus, Fauna B. I., Birds, 2nd ed. vol. i, p. 80 (part.).

This Titmouse breeds between 3,500 and 9,000 feet in the North-West Himalayas. It is very common from Murree East to Garhwal, Simla States, Naini Tal and Mussoorie. It occurs in Kashmir but only in small numbers. April is the usual breeding month but eggs are sometimes laid in March and many in May, whilst

a few birds continue to lay up to the end of June. They do not appear to have two broods in the year unless the first brood is lost by accident.

The nest may be placed in a hole in almost any position, tree, post, old stump, bank or roadside wall, but undoubtedly the favourite position is a wall of some kind. On the other hand it is exceptional for them to make their nests in buildings as the Grey Tit so often does. The nest is just a pad of fur or wool on a basis of moss or moss mixed with grass and feathers. Wool is, perhaps, more popular with this bird than with the *Parus major* group and both Rattray and Whymper found nests made of wool alone. Cock, on the other hand, found one nest composed of a mass of soft fur "like rabbit-fur."

The clutches of eggs are large, five to eight in number, the last being by no means rare.

They are very like the eggs of the Northern Indian Grey Tit but as a whole even more richly marked. As regards any egg, however, of the one it could always be matched with an egg of the other.

Forty eggs average 16.7×13.1 mm.: maxima 18.0×13.1 and 17.3×14.2 mm.; minima 16.0×12.4 mm.

(59 a) *Parus monticolus lepecharum* Meinertz.

THE EASTERN GREEN-BACKED TIT.

Parus monticolus monticolus, Fauna B. I., 2nd ed. vol. i, p. 80 (part.).

Parus monticolus lepecharum, ibid. vol. viii, p. 597.

This Green-backed Tit breeds from Eastern Nepal and Sikkim through the sub-Himalayas to Eastern Assam. It also occurs throughout the hills of Assam South of the Brahmapootra to Manipur and the Chin Hills. It is a bird of the hill-ranges above 5,000 feet though it may be found breeding down to 4,000 and up to 10,000 feet. Meinertzhagen found it up to 8,800 feet in Sikkim even in winter.

In the Khasia Hills this Titmouse was extremely plentiful, commencing to nest in the end of March, laying from the first week in April and continuing through May into early June, though I think the later nests may have been second attempts, the first having been lost by accident or vermin. I have seen hard-set eggs in July, but these were the third laying in the same nest, made in a hole in the wall of my garden. The first clutch was destroyed by mice, the second, I think, by a snake or lizard and the third clutch was hatched and the young duly reared. The favourite nesting site is in one of the retaining walls which protect nearly all hill roads and I have myself found three nests of this Tit and two of the Grey Tit in one such wall only about $\frac{3}{4}$ mile long. It is quite useless to hope to find these nests by frightening

the birds off with a tapping stick, for the hen bird will never leave the nest until she is literally pulled out of it, more especially if she has begun to sit in earnest. One may sometimes accidentally spot a bird going in or out but the only systematic way is to watch during late March and early April for birds going about with nesting material. A skin with soft fur hung up near a likely nesting place is sure to attract them, as will a bit of sheepskin or a bundle of soft cotton wool. Two nests within a few yards of my own house in Shillong were built, except for a basal pad of green moss, entirely of cotton wool hung out for this purpose.

Gammie, who took its nest in Sikkim in a Chinchona reserve found them in partially cleared country. In Assam they had to come more or less into the open to find road walls but, when they bred in trees, they often selected stumps and trees well inside heavy forest, even in the interior of the sombre pine forests which cover so much of the Khasia Hills.

Rarely will they build in the eaves or posts of a house or shed, but this is not so common with them as it is with the Grey Tit.

The full clutch of eggs is five or six and a larger or smaller number is unusual.

As a series they are much more heavily marked, with bigger, more richly coloured blotches than the eggs of the Grey Tits but they very closely approach those of the Northern Indian race. Occasional clutches may be met with which have the ground pure dead white with all the markings confined to the larger end, where they form dense caps or rings.

One hundred and fifty eggs average 17.1×12.8 mm. : maxima 18.8×13.9 mm. ; minima 15.3×12.3 mm.

Parus cyanus.

THE BLUE TIT.

(60) *Parus cyanus tianschanicus* Menz.

THE TIANSCHAN BLUE TIT.

Parus cyanus tianschanicus, Fauna B. I., Birds, 2nd ed. vol. i, p. 81.

This little Tit is said to breed in Tianschan, Turkestan, Afghanistan and Chitral to Baltistan.

The only record of this bird breeding is a nest with five eggs taken by Mr. F. Ludlow at Kok-Terek, Tekkes Valley, Turkestan, at an elevation of 4,500 feet, on the 30th May, 1930. They were taken from a hole in a Terek-tree.

Fulton records it as very common in certain localities in Chitral, haunting Willow-trees near streams.

I have another clutch of four eggs in my collection taken by Mr. D. Macdonald, an Ordnance Clerk in Chitral, on 7.5.86. The data-ticket on the skin, written in pencil and almost illegible, reads "7.5.86, Polotz, Mandal-Chitral Pass, N.W. Frontier; camp about 8,000-10,000 feet but eggs and skin collected much higher." The collection containing these only passed into my hands long after the collector's death and it was not possible to obtain further data.

The nine eggs are all white, lightly marked with pinky-red spots, sparse everywhere, but less so at the larger end.

They average 17.3×12.8 mm: maxima 17.9×13.0 and 17.4×13.1 mm.; minima 17.0×12.4 mm.

(63) *Lophophanes melanolophus* Vigors.

THE CRESTED BLACK-TIT.

Lophophanes melanolophus, Fauna B. I., Birds, 2nd ed. vol. i, p. 83.

This is one of the most Common Tits of North-West India, being found almost throughout the Himalayas from the extreme West to Nepal. Hume gives the elevation of its habitat as 6,000 to 8,000 feet but since his time it has been found breeding at far higher elevations. Whymper took several nests in the Nila Valley in Garhwal at 10,000 and 11,000 feet, whilst in Chitral Fulton says it is common between 5,000 and 12,000 feet.

According to Hume the breeding season lasts from "March to June, but the majority, I think, have laid for the first hatch by the end of the first week in April, unless the season has been a very backward one. They usually rear two broods." Davidson, however (Ibis, 1898, p. 9), writes: "It was in flocks at Sonamurg on the 5th May, but paired immediately afterwards, as we saw a pair building on the 8th. We took several nests between the 24th May and 16th June; that taken on the 24th May containing seven eggs just being hatched, while one of those taken on the 16th June contained 6 fresh eggs." This account agrees with those of my other correspondents, Whymper, Jones, Rattray and many others, who consider May the normal month for eggs, early June almost as much so, though eggs may be found in both late June and April. Two broods are probably exceptional at the higher elevations. Jones took a set of six fresh eggs near Simla at an elevation of about 8,000 feet on the 13th April.

The favourite site for the nest is in a natural hollow in a tree. Those found by Davidson in Kashmir "were at various heights, but most did not exceed four or five; we found one, however, over forty feet from the ground. All were in holes in trees, but generally so near the entrance that it was easy to get at the nest by merely breaking away the rotten wood round the hole with a knife."

They often also build in holes in stone walls and rarely in holes in banks, whilst Rattray took one nest "from a hole in wall of the house occupied by the Chaplain. It was within two feet of a door through which servants were passing in and out all day."

The nest is a pad of moss with a superstructure of soft fur. The pad of moss varies according to the size of hole in which the nest is placed. Hume describes one nest built in a hole in a stone wall of his garden. The hole was a foot high and six inches wide, the whole being filled in with nearly half a cubic foot of dry green moss. In smaller holes much less moss is used and in some of the smallest the moss may be dispensed with altogether, the birds contenting themselves with a pad of fur only. This is very much worked together so as to form a pad of what looks more like soft felt than fur until it is pulled to pieces. The fur is sometimes mixed with a little hair, or a little wool; sometimes with both of these or, occasionally, with a little Simul cotton or other vegetable down. Now and then the upper pad of the nest is made all of wool but such nests seem to be rare.

The full clutch of eggs varies from five to ten but six seems to be the number most often laid.

The eggs are pure white without any pink tinge when blown. The markings consist of reddish-brown or light Indian-red specks and blotches. In some eggs the specks are very small and numerous, in others they are considerably larger and less numerous. In a few eggs they are scattered freely over the whole surface but in most they are more plentiful at the larger end, where they frequently form a quite distinct ring but very seldom a cap. In shape they are normally the usual broad, blunt oval of Tit's eggs, but in this genus, more than in *Parus* etc., they do sometimes run to a rather long oval.

One hundred eggs average 15.7×11.7 mm. : maxima 16.8×11.9 and 16.0×12.4 mm. ; minima 14.0×11.8 and 14.1×10.0 mm.

Lophophanes rufonuchalis.

THE BLACK-TIT.

(66) Lophophanes rufonuchalis rufonuchalis Blyth.

THE SIMLA BLACK-TIT.

Lophophanes rufonuchalis rufonuchalis, Fauna B. I., Birds, 2nd ed. vol. i, p. 85.

The Simla Black-Tit is found from Turkestan and Afghanistan to the Simla States and Garhwal. Scully got it at Gilgit, where he says it breeds, and Ward describes it as widely distributed throughout Kashmir.

Very little is recorded about its breeding. Wardlaw Ramsay says that it was breeding in Afghanistan in May (Ibis, 1880, p. 45) and Brooks found a nest containing young at Derali in the middle of May. This nest was "under a stone in the middle of a footpath, up and down which people and cattle were constantly passing." It was not, however, until 1910 that its eggs were taken, the fortunate finder being Mr. S. L. Whympers. He writes (Journ. Bomb. Nat. Hist. Soc. vol. xx, p. 1157, 1911) as follows :—

"These birds I found very common from 8,000 up to 11,000 feet ; they appear to build invariably in a hole on the ground, usually under a stone or root and, except when building, it is practically impossible to find the nests, as they are usually in most unlikely looking holes. It is also not easy to hit off the right time to get a full clutch of fresh eggs, as they have an exasperating habit of carrying in wool long after the eggs have been laid, and I have lost two clutches by their being hard set when dug out ; however, five nests with fresh eggs were secured and many were seen with young in May. The nest is a mere pad of wool with a little moss and is placed sometimes two feet from the entrance ; the eggs seem much less spotted than most Tits and four seems the full clutch, at least I never saw more either of eggs or young."

The only other nest taken was one by Col. A. E. Ward which has since passed into my collection. This was taken in the Liddar Valley, the nest of fur and moss being placed in a rat's hole in a bank and contained six eggs. The bird was shot off the nest and is now in Col. Ward's collection. The eggs seem, however, small for those of this bird. They only measure about 14.5×12.0 mm., whereas Whympers's 11 eggs average 17.6×12.9 mm. : maxima 18.2×13.1 mm. : excluding Ward's eggs the minima are 17.1×12.1 mm.

In appearance they are typical Tit's eggs and could not, I think, be distinguished from rather feebly marked, longish eggs of the Grey-Tits.

(67) *Lophophanes rufonuchalis beavani* (Blyth).

THE SIKKIM BLACK-TIT.

Lophophanes rufonuchalis beavani, Fauna B. I., Birds, 2nd ed. vol. i, p. 86.

The Sikkim form of Black-Tit is found from Eastern Nepal to Sikkim, Tibet and Western China at high elevations. The only nest found so far, I believe, is one from which two eggs and the parent bird were sent me, taken by Mr. H. St. J. Hickley at about 10,000 feet "above Gangtok in Sikkim." The nest was described as "a pad of moss and fur placed in a hole at the roots of a tree on a mossy sloping bank. Nest-hole originally probably that of a small field-rat. Elevation about 10,000 feet or rather more. Country open forest of stunted oak and other trees."

These two eggs are pure white, well blotched with rather large blotches of reddish. They measure 18.8×14.0 and 18.5×13.8 mm. They were taken on the 19th May.

(68) *Lophophanes dichrous dichrous* (Blyth).

THE BROWN CRESTED TIT.

Lophophanes dichrous dichrous, Fauna B. I., 2nd ed. vol. i, p. 87.

The Brown Crested Tit is found through the Southern Himalayas from South Kashmir to Sikkim, probably breeding wherever found between 8,000 and 10,000 feet.

Osmaston is the only ornithologist who has described the breeding of this Titmouse, and I give his notes in full:—

“On May 1st I saw a strange Tit come out of a small round hole in a dead branch of a wild Cherry-tree. I shot the bird which proved to be a Brown Crested Tit, and then investigated the hole, which was at a height of about 10 feet from the ground. On breaking off the branch, just below the hole, I discovered to my regret that the nest contained four freshly hatched young. It was placed at the bottom of a cavity about nine inches deep, the nest cavity having been apparently excavated by the birds themselves. The nest was composed of moss below, then a quantity of fine hair (probably rat's) above and lined with the same material with the addition of a few Monal feathers. The nest was found at about 8,000 ft.” (Journ. Bomb. Nat. Hist. Soc. vol. ix, p. 192, 1894).

In 1899 Osmaston succeeded in taking eggs (J. B. N. H. S. vol. xiii, p. 542, 1901):—“On the 14th April, 1899, while riding along the Simla-Chakrata Road above Mundali, at an elevation of about 9,300 ft., I heard the characteristic call of this tit from a neighbouring tree. I dismounted and awaited possible developments. I soon saw the birds, a pair, in a wild Pear-tree (*Pyrus ceria*) and had not long to wait before one of them disappeared into a small round hole in a dead branch near the top of the tree. The branch was quite rotten so that I easily obtained access to the nest by enlarging it with my fingers. The nest was made of moss, lined with the fur of rats and flying squirrels, and contained 5 fresh eggs.” Finally on April the 30th, 1917, Osmaston took a second nest at Deoban at about 9,000 feet and some 4 miles from Chakrata. This nest was built in an oak-branch about 20 feet from the ground and is thus described:—“The hole, which had evidently been excavated by the parent birds, led to a small cavity about five inches deep in which was placed the nest, which was composed of moss, copiously lined with grey hair. There were five fresh eggs.”

The eggs are broad obtuse ovals, pure white rather thickly spotted with reddish, a little more so at the larger end than elsewhere. The nine eggs average 17.1×12.8 mm.: maxima 17.8×13.0 mm.; minima 16.3×13.0 and 17.0×12.5 mm.

Machlolophus spilonotus.**THE BLACK-SPOTTED YELLOW-TIT.****(73) Machlolophus spilonotus spilonotus (Blyth).****THE NORTHERN BLACK-SPOTTED YELLOW-TIT.**

Machlolophus spilonotus spilonotus, Fauna B. I., Birds, 2nd ed. vol. i, p. 89.

The breeding range of this Tit extends from Garhwal to the Miri Hills and Lakhimpur in East Assam and to the Lushai Hills in the South but apparently not into the Chin Hills.

This is an extremely common Titmouse in the Khasia Hills above 5,000 feet, being occasionally found a few hundred feet lower. To describe the nesting of the Yellow-Tit would be to repeat all over again that of the Northern Grey-Tit and the Green-backed Tit.

It commences to breed in March and I have taken eggs as early as the 25th of that month. From then onwards eggs are equally numerous throughout April and early May, after which nests, if found, will usually have young in different stages of fledging. They continue, however, to lay until the end of June, such eggs I think being mostly second broods, though I do not believe they are normally double-brooded.

One difference between this genus and the Grey-Tits is that the former undoubtedly prefers holes in trees, rather than holes in walls, in which to breed. Round Shillong itself the Pine woods give but scanty chances to tree-hole breeding birds and in consequence they resort to the stone walls which support every road and pathway. Higher up where there are Rhododendrons and Oaks with good holes in them suitable for nesting purposes the birds never breed in the stone walls, though they are equally numerous there as lower down.

The nest is the same pad of fur, hair or wool as that made by the other Tits, but I have seen several nests of this bird made with a basis of chips of bracken-leaves. The fur most often used by this bird is that of the Bamboo Rat and, when that is superimposed on moss, the contrast between the green and chestnut is very striking.

The bird is just as bold as is the Grey-Tit and I have often opened up a nest and taken the bird out with my hand. One bird returned three times and tried to settle on the eggs as I was examining them. Eventually I gave her to my orderly to hold while I rebuilt the nest wall up and saw her once more safely on her eggs, protesting loudly against our interference.

The eggs only differ from those of the Grey-Tit in being as a series more handsomely and boldly blotched and in being larger. Looking at them as a whole, although they are not much longer they are decidedly broader in comparison, and this makes them

look very big. Individual clutches can be matched in colour by others of the Grey-Tits. In a few of the eggs of the Yellow-Tits the ground is distinctly washed with pink.

Sixty eggs average 17.6×14.1 mm. : maxima 19.0×14.9 mm. ; minima 16.6×13.7 and 17.0×13.0 mm.

The eggs number four to six and the largest clutch I have taken is seven, but this is rare.

(74) *Machlolophus spilonotus subviridis* Tickell.

THE BURMESE BLACK-SPOTTED YELLOW-TIT.

Machlolophus spilonotus subviridis, Fauna B. I., Birds, 2nd ed. vol. i, p. 91.

This Yellow-Tit breeds throughout the higher hill ranges of Burma from the Kachin Hills, Chin Hills (Mt. Victoria) to Tenasserim (Mulevit) and is also found in Yunnan, Shan States and Siam.

Col. Stanley Pershouse is apparently the only person to take the nest and eggs of this race of Yellow-Tit. Notes sent to me with the nest are as follows :—

“I found only one nest of this species at Sinlum Kaba and that was on the 8th of April, 1913. It was placed in a hole about three feet from the ground in a tree by the side of a path running through jungle. The hole faced the path and on the other side, towards the jungle, there was a large crack in the tree through which the bird made its escape on my examining the nest. Unlike most Tits, after being disturbed once or twice it was very far from being a close sitter, although evidently it would have taken a great deal to make it desert its nest. Generally it left the nest directly I touched the tree, going away into the jungle like a flash.

“When I found the nest it contained three eggs but, as I was very anxious to secure the bird, I visited the nest daily from the 8th to the 17th endeavouring to do so, but was unsuccessful. Fearing to leave the eggs any longer I took them. They were very hard set but I managed to blow them.

“They are white, two boldly spotted and one speckled with brownish red and having underlying marks of very pale lavender. They measure about 19.3×15.2 mm.”

The nest, very kindly sent for my inspection, is a thick pad of the finest fur, dark grey in colour, well matted together and fitting exactly into the bottom of the hole in the tree. It measures about 4 inches across and rather less in depth with a depression for the eggs about an inch deep.

Machlolophus xanthogenys.**THE YELLOW-CHEEKED TIT.****(75) Machlolophus xanthogenys xanthogenys (Vigors).****THE NORTHERN YELLOW-CHEEKED TIT.**

Machlolophus xanthogenys xanthogenys, Fauna B. I., Birds, 2nd ed. vol. i, p. 91.

The breeding range of this Titmouse extends from about Murree to Nepal and Sikkim; Rattray did not find it common about Murree but it is very common around Mussoorie and also in the Garhwal and Simla Hills.

The Yellow-cheeked Tit is far more of a forest bird than the Black-spotted Tit and, though sometimes breeding in gardens or close to houses, it is more often found nesting in forest. It also seems to keep exclusively to holes in trees for this purpose, selecting such as are at any height from 4 to 20 feet from the ground. Almost any tree with a convenient hole will suffice for the purpose but Oak-trees seem to be the most popular. As a rule a ready-made hole is used in which to place the nest but sometimes the birds will themselves make a hole in a rotten branch or stump. The nest is the usual pad of fur or wool on the top of moss or other material. They breed at all heights from 4,000 to 7,000 feet and perhaps both higher and lower. Eggs have been found from the last ten days in March to well on in June but the great majority of eggs are certainly laid in April. Jones says that round Simla they seem to be double brooded.

The eggs only differ from those of the preceding species in averaging a narrower oval. Forty eggs average 17.9×13.2 mm. : maxima 18.7×13.1 and 18.3×14.0 mm. ; minima 16.9×12.6 and 17.2×12.2 mm.

They lay from four to six eggs. In Simla Jones and Dodsworth found four eggs to be the most usual full clutch but in Mussoorie, Murree and other places five eggs were very often laid.

(76) Machlolophus xanthogenys aplonotus (Blyth).**THE SOUTHERN YELLOW-CHEEKED TIT.**

Machlolophus xanthogenys aplonotus, Fauna B. I., Birds, 2nd ed. vol. i, p. 92.

This form of Yellow-Tit breeds over practically the whole of the hills of Southern India South of a line drawn roughly from Abu to Chota Nagpore. West of Abu they do not occur nor do they seem to be ever found East of Paresnath in Chota Nagpore.

They breed at all heights up to about 6,000 feet and appear to have two breeding seasons, the first April and May into June and the second September and October; Butler also took eggs in July. The nest is quite typical and is made nearly always in holes in trees, sometimes in deserted nest-holes of Barbets and Woodpeckers, sometimes in holes dug out by the birds. It does not seem to matter much where the tree grows; it may be in a garden, an orchard or, as Mr. A. P. Kynloch found it, in deep forest. In this instance it was placed in a hole between boulders on a bank, a very unusual site for this bird.

The base varies more in this bird's nests than in those of the other Tits. Although moss is the principal material employed many others are often mixed with it. In one nest, found by Butler in Belgaum, "the foundation consisted of a quantity of dry green moss. Next came a thick layer of coir, mixed with a few dry skeleton-leaves, some short ends of old rope and a scrap or two of paper and, finally, a substantial pad of blackish hair, principally human, but with cow- and horse-hair intermixed."

Another nest found by him was "a simple pad of human and cow's hair, with a few horse-hairs interwoven, and one or two bits of snake-skin in the lining, having a thin layer of green moss and then strips of inner bark as a foundation."

The clutch numbers three to five, four being the number most often found. Sixty eggs average 17.9×13.5 mm.: maxima 19.0×14.8 mm.; minima 16.0×13.5 and 16.2×13.3 mm.

Ægithaliscus concinnus.

THE RED-HEADED TIT.

(77) *Ægithaliscus concinnus iredalei* Stuart Baker.

THE SIMLA RED-HEADED TIT.

Ægithaliscus concinnus iredalei, Fauna B. I., Birds, 2nd ed. vol. i, p. 93.

The Simla Red-headed Tit breeds from Chitral to the Garhwal Hills and, probably, West Nepal, being found during the breeding season between 6,000 and 10,000 feet. Both Hutton and Mackinnon found its nest near Mussoorie at about 5,000 feet but this is unusually low, 6,000 to 7,000 feet being their favourite elevations.

They are very early breeders, commencing early in March when eggs were taken by Hume, by Dodsworth and Jones about Simla, by Osmaston at Chakrata, by Whymper at Naini Tal and by Ward in Kashmir. They lay all through April and some birds well on into May.

The site selected varies greatly. Hume says: "The nest is, I think, most commonly placed in low stunted hill oak bushes,

either suspended between several twigs, or wedged into a fork. I have found the nest in a Deodar tree, *laid* on a horizontal bough. I have seen them in tufts of grass and other unusual situations." Hutton took one in overhanging coarse grass on the side of a bank and yet another in "ivy twining round a tree and at least 14 ft. up."

Round Simla Dodsworth and Jones found most nests placed in Deodars in masses of foliage pendent from boughs placed quite low down, generally between 3 and 6 feet from the ground. Sometimes, however, the nest is placed at great heights and Rattray mentions one which was built in a tall tree no less than 40 feet up.

The nest is a very beautiful structure very like that of the British Long-tailed Tit and, like that bird's, often so perfectly camouflaged to suit its surroundings that it is very hard to find. It is a small nest, a roughly round or egg-shaped ball, anything from 4 to 6 inches in its longest axis and perhaps between $3\frac{3}{4}$ to $5\frac{1}{2}$ in the shorter. The main material is green moss but this is mixed with lichen, fine roots, scraps of bark, down and a few small feathers all bound together with cobwebs. The lining consists of a dense mass of feathers, generally small and soft but not always so. Sometimes with the feathers may be mixed a little wool, fur or vegetable down. When the nest is built on a tree or stump covered with lichen, this material is used to coat the nest, which then looks more like a natural excrescence than a bird's nest.

The eggs number three to six, Hume says six to eight, but I have not seen more than six and many of my correspondents have found three eggs hard set. Dodsworth, who took many nests, in a letter to me writes: "I cannot think how Hume managed to find nests of six to eight eggs. I find even four rare and so many nests contain 3 young or 3 hard-set eggs."

The ground-colour varies from pure white to pale lilac-white or pinkish-white, whilst the markings consist of the tiniest freckles of pinkish-red disposed in a dense ring round the larger end and sparse or absent elsewhere. In some eggs the ring is very faint and ill defined and in others it is a narrow unicoloured zone of quite dark reddish-brown. Dodsworth obtained one clutch of pure white eggs and in the same month and place, Simla in April, a second set freely freckled all over with lilac-pink.

One hundred eggs average 13.9×10.6 mm.: maxima 15.2×10.7 mm. and 14.2×11.4 mm.; minima 12.6×9.9 and 13.0×9.8 mm.

In shape they are broad blunt ovals with a very fine texture but no gloss.

(78) *Ægithaliscus concinnus manipurensis* Hume.

HUME'S RED-HEADED TIT OR THE MANIPUR RED-HEADED TIT.

Ægithaliscus concinnus manipurensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 94.

The breeding distribution of the Manipur Red-headed Tit is from the Khasia Hills, where it is very rare, through the Naga Hills to extreme East Lakhimpur South and East of the Brahmaputra, Manipur, Lushai Hills and the adjoining Chin Hills. It is common in the Naga Hills above 7,000 feet and also on the higher ranges of the Chin Hills.

I found one nest of this tiny Tit in Shillong at 5,000 feet in March, built in a Pine-tree (*Pinus khasiana*) in my compound in Shillong, 5,000 feet, but it was deserted before any eggs were laid. Tytler took a good many nests near Kohima between 7,000 and 9,000 feet in 1909. He describes the nests as "egg-shaped balls of moss, lichen and seed down, held together with cobwebs and densely lined with a mass of small feathers. One nest measured about $6\frac{1}{2}'' \times 4\frac{1}{4}''$. They nearly always built in tufts at the end of branches of Pine-trees and, as a rule, are placed fairly low down, at other times at considerable heights."

Hopwood and Mackenzie took several nests in April and May in the Chin Hills. Mackenzie describes one nest which differs considerably in many respects from most Red-headed Tits' nests, but which he found to be the normal type in that district.

He says "the Manipur Red-headed Tit builds a most beautiful little hanging nest, domed like a Long-tailed Tit's, but neater. It was found on a hill side in a jungle of big trees and thick undergrowth. It was placed about 15 feet up in a little tree, hanging from the end of a small branch. The opening of the nest was near the top, and the nest itself was made of seed-stems of grass, only very fine pieces being used, and it was plastered all over with cobwebs, lichen, grass fragments, feathers etc., with a marvellously soft lining of feathers. The bird seems to like bright feathers and there were some of the Scarlet Minivet, Jungle-fowl, some breast feathers of Mr. Hume's Pheasant as well as others. The nest was taken at about 6,000 ft. elevation."

Hopwood also refers to the bright coloured feathers used for the lining of a nest found by him, similar in construction to the above except that it was nearly all moss outside.

Three or four seems to be the full clutch as Tytler, Hopwood and Mackenzie all found three eggs more or less incubated. They are indistinguishable from those of the preceding bird but even smaller and on an average decidedly paler. Nineteen eggs average 13.1×10.4 mm.: maxima 14.0×10.7 and 13.2×10.75 mm.; minima 12.7×10.0 mm.

(80) *Ægithaliscus concinnus talifuensis* Rippon.

THE YUNNAN, OR RIPPON'S, RED-HEADED TIT.

Ægithaliscus concinnus talifuensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 95.

This little Tit is resident in the Kachin Hills, Shan States and Yunnan, breeding, so far as is known at present, between 3,000 and 6,000 feet.

Harington, who was, I believe, the first to take this Tit's nest, thus records its breeding habits (Ibis, 1914, p. 5):—"The Yunnanese Long-tailed Tit is fairly plentiful in the Bhamo Hills. It is an early breeder at Sinlum, and I think must have two broods, as during April and May I saw several family parties about. On the 28th April, 1908, I found a nest containing three eggs. This was placed between the stems of a wild raspberry bush, at about two feet from the ground. It was a beautiful little miniature Long-tailed Tit's nest, composed on the outside entirely of moss, and lined with fine vegetable down, inside which was an inner lining of feathers."

F. Grant took several nests round Sinlum in March and April 1913 which he describes as replicas of the above.

The nests were taken both in deep forest and in semi-open forest with a comparatively scattered tree-growth.

The eggs differ in no way from those of the Indian race.

Ten eggs average 13.8×10.5 mm. : maxima 15.1×10.8 and 15.0×11.3 mm. ; minima 12.2×9.8 mm.

(83) *Ægithaliscus leucogenys* (Moore).

THE WHITE-CHEEKED TIT.

Ægithaliscus leucogenys, Fauna B. I., Birds, 2nd ed. vol. i, p. 97.

Within the North-West Himalayas this Tit is found from Afghanistan through Kashmir and Kuman to the Simla Hills and Garhwal.

Capt. C. H. T. Whitehead shot specimens of this little bird at Safed Koh on the 20th July at 8,100 feet and at Samana, 5,000 feet, in November. He says (Ibis, 1909, p. 107): "A resident in the Upper Kurram Valley and on the Samana, being largely reinforced in Winter"; to this he adds in his own copy of 'The Ibis,' "and at that season some descend to the lower scrub-covered hills, occurring as far South as the Mianwali district and as low as 2,500 feet.

"Breeds freely in the Ilex scrub near Peiwar from 6,000 to 8,000 ft. Nesting operations must commence towards the end of March, as a nest found on the first of May contained fully fledged

young. The nest is usually placed near the top of an *Ilex* bush from three to seven feet from the ground. It is egg-shaped and rather like that of the British Long-tailed Tit, but a good deal smaller and not quite so neat. It is made of moss and cobwebs outside, lined with a little grass, with a thick inner lining of feathers. The opening is usually near the top but is sometimes nearer the centre. We came across seven nests altogether, the first six containing young and the seventh a nearly fresh clutch of five eggs. These are pure white, three having a very faint zone of spots round the large end, the remainder being unmarked and averaging $.58 \times .39$ " ($= 14.7 \times 9.9$ mm.).

Fulton had previously recorded this Tit as resident and very common in Chitral between 6,000 and 12,000 feet, whilst Ward says it is resident in Kashmir and is found in Gilgit and Baltistan.

(84) *Ægithaliscus niveogularis* (Moore).

THE WHITE-THROATED TIT.

Ægithaliscus niveogularis, Fauna B. I., Birds, 2nd ed. vol. i, p. 98.

The breeding range of the White-throated Tit extends from Chitral and Baluchistan to Gilgit and East to the Simla States and Garhwal Hills at elevations between 6,000 and 12,000 feet, probably only nesting at the higher elevations.

Whymper was the first person to discover the nest and eggs of this bird and he describes their nidification (Journ. Bomb. Nat. Hist. Soc. vol. xvii, p. 817, 1907) as follows:—

"This Tit I found by no means uncommon at about 11,000 to 12,000 feet. Several parties of young were about and three nests with young were found, and I was inclined to think it was too late for eggs, but on June 14th a bird was seen carrying a feather, and the nest was soon discovered. It was placed in the fork of a willow about six feet up, a globular nest resembling that of the Red-headed Tit, but larger; it was profusely lined with Monal feathers, many of them quite large ones, over three inches long, with hard stiff quills, not at all a comfortable lining one would have thought for so small a bird. I took four fresh eggs from it on June the 26th; they are white, rather feebly spotted with pink at the larger end and show no trace of the zone of colour that is so marked in the eggs of the Red-headed Tit. Some of the nests were from 28 to 30 feet up in trees."

Whymper's notes refer to Tehri Garhwal and later in the same country, but in the Tons Valley Osmaston again obtained a nest and eggs, which he found by watching one of the parent birds carrying food which, in his words, "gave away the position of the nest, which was placed in the fork of a Cherry-tree, 10 feet from the ground."

"The nest exactly resembled that of the English Long-tailed Tit. It harmonized so closely with its surroundings (lichen-covered bark) that it would probably have escaped my notice had its position not been betrayed by the parent bird.

"The nest was copiously lined with feathers, mainly those of the Monal pheasants. It contained half fledged young."

Both Dodsworth and Jones obtained this Tit at Simla and the former sent me eggs as of those of the Red-headed Tit which proved later, when I saw the skin, to be of this species. Unfortunately this was after Mr. Dodsworth's death so I could get no further details. The eggs taken by Whymper vary in size between 14.3×11.2 and 14.0×10.8 mm.

Melanochlora sultanea.

THE SULTAN TIT.

(87) *Melanochlora sultanea sultanea* (Hodgs.).

THE INDIAN SULTAN TIT.

Melanochlora sultanea sultanea, Fauna B. I., Birds, 2nd ed. vol. i, p. 101.

The Sultan Tit is found throughout the lower levels of the outer Himalayas from Nepal to Eastern and Southern Assam and East to the Shan States, Arrakan and Karenni.

In spite of its being so common a bird, the only records of its breeding are my own (Journ. Bomb. Nat. Hist. Soc. vol. viii, p. 48.) It is a bird of dense forests during the breeding season or of the scattered Oak forest growing in grass country. My nest was found in the latter on the 17th May, 1890. "I was out at the time after Gaur and was going through thinly scattered Oak forest with an undergrowth of young sun-grass. Whilst resting for a few minutes under a tree, I noticed a male of this species on a tree opposite carrying something in its mouth; presently he flew into a tree about a dozen paces away and promptly disappeared into a long crevice which ran down one of the main boughs. Sending a man up to investigate, both male and female flew away and, to my delight, the man announced that there was a nest with seven eggs.

"Both nest and eggs were brought down for my examination. The former was a thick pad of very fine scraps of moss, compressed down until it formed an almost solid mass, in depth about 4" and about the same in diameter at the top, whence it gradually narrowed to a point in shape, the same as the hollow in which it was placed. The depression in which the eggs were laid was about 3" in diameter by hardly $\frac{1}{2}$ " deep and this was almost filled with soft cotton down.

"The eggs are like those of *Machlolophus spilonotus*, differing only in size. The ground-colour is a chalky white, and the whole surface is thickly scattered with brownish-red spots of a bold character, others underlying of a pinkish grey and light neutral tint."

In shape they are very broad ovals.

The eggs were almost hatching and two were quite unblowable.

The average size of the five eggs saved is 19.0×15.3 mm.

Another clutch of six eggs, remnants of another just hatching clutch, was brought to me by a hillman who said he had taken them from a "split branch" of a tree standing in a very wet heavy forest at about 3,000 feet elevation. These were exactly like those taken by myself but much larger, averaging about 21.7×16.5 mm. They were taken on the 28th of April.

Family PARADOXORNITHIDÆ.

(89) *Conostoma æmodium* Hodgs.

THE GREAT PARROT-BILL.

Conostoma æmodium, Fauna B. I., Birds, 2nd ed. vol. i, p. 104.

This, the largest of all our Indian Parrot-Bills, is confined to the higher hills of Sikkim, North Assam, South Tibet and Kansu.

In Sikkim it has been found breeding, twice only, between 8,000 and 10,000 feet. Mandelli obtained one nest in Native Sikkim at 10,000 feet. This nest and one egg, out of three originally in the nest, were first described by Hume and then the former redescribed by Mandelli (Hume's 'Nests and Eggs,' vol. i, p. 43). As the latter describes the nest as he saw it when fresh I quote his description in preference to that of Hume. It was found, he says, "in May in Native Sikkim, in a cluster of Ringal (hill-bamboo) at an elevation of nearly 10,000 feet. It is a large, rather broad and shallow cup, the great bulk of the nest composed of extremely fine hair-like grass-stems, obviously used when green, and coated thinly exteriorly with coarse blades of grass, giving the outside a ragged and untidy appearance. The greatest external diameter is 5.5 inches, the height 3.2, but the cavity is 4.5 in diameter and 2.2 in depth, so that, though owing to the fine material used throughout, except in the outer coating the nest is extremely fine and compact, it is not at all a massive looking one."

The single egg saved out of the three is "a regular, moderately elongated oval, slightly compressed towards the smaller end. The shell is fine and thin and has only a faint gloss. The ground-colour is a dull white, and it is sparsely blotched, streaked, and smudged with pale yellowish-brown, besides which, about the larger end, there are a number of small inky purple spots and clouds, looking as if they were beneath the surface of the shell."

The only other known nest and egg was taken by St. J. Hickley at about 8,000 feet (or more) in Native Sikkim in Ringal jungle.

These were sent to me and are very like those described by Hume. The nest is a deep cup of grass and reed-bark, lined with very fine grasses. It is typical of the nests of this family in being yellowish in colour, very compact and well built, though it has not got the finish or neatness of some of them. From the marks on the nest it looked as if it had been built in fine reeds or on grass-stems but the marks might equally well have been made by bamboo-twigs. There were two eggs but one was broken. The other has a white ground with a few specks and tiny blotches of reddish, sparse elsewhere but fairly numerous at the extreme larger end.

It measures 27.8×20.4 mm., whilst that sent to Hume is 28.1×20.8 mm. Hickley's egg was taken on the 27th June.

(90) *Paradoxornis flavirostris* Gould.

THE BLACK-THROATED, or GOULD'S, PARROT-BILL.

Paradoxornis flavirostris, Fauna B. I., Birds, 2nd ed. vol. i, p. 105.

Gould's Parrot-Bill breeds between the foot-hills and 8,000 feet in the outer Himalayas from Nepal to Eastern Assam, Surma Valley, Manipur, Lushai and Chin Hills.

I have not myself taken the nest over 5,000 feet but Tytler found the species breeding freely at 7,000 and 8,000 feet in the Naga Hills. The favourite height is probably 3,000 to 4,500 feet, many nests having been taken by myself in the Cachar and Khasia Hills at these elevations.

The jungle generally selected for breeding purposes is undoubtedly bamboo and next to that secondary growth, especially such as is mixed with grass and bamboos. It also haunts the immense *ekra* and elephant grass plains bordering the Subansiri and other rivers, where they debouch from the hills into the plains. They seem to have a predilection for wet places and, even when breeding at high elevations, select small wet patches where there is some growth of grass, cane or reeds. As a rule they are not birds of true forest but may now and then be seen in quite deep forest at 3,000 feet upwards in places where the forest opens out for a space or where long grass and bamboo have obtained a footing.

All the nests I have personally taken have been built in reeds or bamboo with very few exceptions. If in reeds the nest is affixed to three or four of the stout stems between 3 and 5 feet from the ground; if in a bamboo it is usually built in one of the thick clusters of twigs jutting out from the lower nodes but, occasionally, it may be fixed in one of the higher branches. I have seen one or two nests built in forks of bare twigs in saplings, whilst one I took from a cane-brake. The nests are not concealed but, when placed in bamboos or *ekra*, are not conspicuous, as their colour blends with their surroundings, though when taken away from these the

clean yellow colour is very striking. The nest is deep cup-shaped, only a few nests being broad and shallow and these latter I only saw in North Cachar and, even there, they were exceptional. They are, as are all the nests of this family, extraordinarily neat compact nests, measuring between $3\frac{1}{2}$ and 4 inches in external diameter and from 3 to $3\frac{1}{2}$ inches in depth, whilst the inner cup would measure about an inch less each way. The external material consists of fine strips of bark of coarse grasses, *ekra* or bamboo, mixed with a few fine strips from the blades of the grass or the leaves of the bamboos. This is all very strongly twisted round and round and then kept firm and close with spiders' webs. Sometimes white and yellow scraps of lichen and spiders' webs adorn the outside of the nest but even these are well and neatly plastered down. The lining is of grass-bark, very fine grass-stems and, less often, fine strips of grass-blades. Once I found a nest lined with buffalo hair which contrasted curiously with the pale but bright yellow outer structure. Rarely reddish material may be used but all of the same nature as the yellow.

A few birds commence building in the last week of April but not many eggs are laid until May in Assam.

The latest nest with eggs I have seen was on the 18th July but very few birds lay after the middle of June.

The eggs number two or three, as often one as the other, whilst clutches of four have occasionally been taken.

The ground-colour is pure white and they are sparsely speckled at the larger end with pale reddish or, more seldom, with deep reddish-brown. In a very few eggs, perhaps one in thirty, the spots become blotches and clouds, making the eggs closely resemble those of the genus *Psittiparus*.

Fifty eggs average 21.9×16 mm.: maxima 23.1×16.6 and 22.1×17.1 mm.; minima 19.8×14.9 mm.

The texture is neither fine nor close, but glossless and very fragile; the shape blunt oval, occasionally a long oval but never pointed.

(91) *Paradoxornis guttaticollis* David.

THE WHITE-THROATED, or AUSTEN'S, PARROT-BILL.

Paradoxornis guttaticollis, Fauna B. I., Birds, 2nd ed. vol. i, p. 106.

This Parrot-Bill is found in the hills South and East of the Brahmapootra, extending into the Chin and Kachin Hills, Shan States and, thence, into Western China. This bird and the preceding species are very closely allied but seem to be good species, with much overlapping of breeding range. In South Assam both are common and all their habits and nidification seem to be identical but whereas this bird possibly never breeds below 3,000 feet and preferably not below 4,000 the preceding bird is found in the foot-hills

and even into the Plains. Again the present bird ascends far higher. Rothschild's collector found it in great numbers in Yunnan and actually obtained a specimen on the Shweli-Salwin Divide.

The White-throated Parrot-Bill differs in its nidification from the Black-throated Parrot-Bill only in haunting higher elevations and in being less restricted to bamboo, reed or grass jungles. In Laisung, North Cachar, I found them breeding in a narrow strip of bamboo-jungle running alongside the Laisung stream, between the stream and quite dense forest, into which the birds strayed and, sometimes, built.

The breeding season commences in April, in which month Grant took eggs in Bhamo on the 28th, whilst Mackenzie found nests, with one and two eggs respectively, on the 27th and 29th in the Chin Hills. May is, however, the principal breeding month, and in Assam, at all events, nine out of ten clutches are laid in that month.

They breed at least as high as 8,000 feet and, probably, 2,000 feet higher still and, on the other hand, are seldom, if ever, found nesting below 3,000 feet.

In the hills above Margherita in Assam Dr. Coltart and I took nests at a little below 3,000 feet but here, owing to the proximity of snow-topped mountains, we found most birds bred some 1,500 feet or so below their normal elevations. Harington found it breeding at 5,000 feet above Thaugyi.

It would be impossible to distinguish between the nests or eggs of the White-throated and Black-throated Parrot-Bills and even aberrant clutches follow the same lines.

Thirty-four eggs average 22.2×16.4 mm. : maxima 23.6×16.3 and 23.1×17.2 mm. ; minima 20.8×25.9 mm.

The eggs number two or three in a clutch, though once Captain Tancock took four eggs at Sinlum Kaba on the 4th May, 1908.

Suthora poliotis.

THE ORANGE SUTHORA.

(94) *Suthora poliotis poliotis* Blyth.

BLYTH'S, or THE ASSAM, ORANGE SUTHORA.

Suthora poliotis poliotis, Fauna B. I., Birds, 2nd ed. vol. i, p. 109.

The only district from which this bird's breeding has been recorded is the Khasia Hills, where it was first discovered. I never saw it breeding in the adjoining North Cachar Hills, though it must surely do so there and in other suitable places in the hills South of the Brahmapootra.

All my nests have been taken between the 15th May and 21st June at elevations between 2,000 and 4,000 feet. They were found either

in bamboo-jungle or in dense evergreen forest with thick and tangled undergrowth and all in very broken country, steep hillsides with rocky ravines. When in bamboo-jungle they were placed in bamboo-clumps, fixed into the masses of little twigs which shoot from all the lower nodes and often more or less hidden among the débris of fallen leaves. When in evergreen-jungle they were built either in very thick bushes, low down, or in tangles of raspberry vines and other creepers.

The nests are tiny cups, neat and compact, with proportionately bulky sides and bottom, which measure about 4 inches across and about 3 inches or rather less in depth. The outer part is made of fine strips of bamboo-leaves and grass, very fine grass-stems and a fibrous material, possibly fine aerial roots of bamboos. The whole are closely interwoven and then coated with spiders' webs. The lining is of very fine grass stems or hair-like roots very neatly finished off. The height at which they are placed varies from a few inches to about 2 feet from the ground.

The eggs number two to four and are in colour a beautiful pale blue with a soft fine texture and surface, but without gloss. In shape they are typically short broad ovals but a few are somewhat longer and more pointed at the smaller end.

Twenty eggs average 15.7×11.9 mm.: maxima 17.0×12.2 and 15.3×12.3 mm.; minima 15.0×12.0 and 15.6×11.3 mm.

They are very like the eggs of *Zosterops* but darker and less glossy, whilst they differ from the blue eggs of *Franklinia* in being a less bright blue and in having no gloss.

(96) *Suthora poliotis* fœ Salvadori.

THE KARENNI, or SALVADORI'S, ORANGE SUTHORA.

Suthora poliotis fœ, Fauna B. I., Birds, 2nd ed. vol. i, p. 111.

The breeding range of this *Suthora* is confined to an area extending from the Shan States and Kachin Hills to Karenni and Fort Stedman.

The only nest and eggs ever taken were obtained by Col. H. H. Harington from Fort Stedman on the 1st June, 1905. The nest is described as exactly like that of *S. p. poliotis* and was "placed in a very thick bush standing in matted reeds and grasses overgrown with creepers and very hard to find." The nest, which was sent to me with the eggs and parent birds, is a small cup made entirely of shreds of grass-blades well coated and plastered with cobwebs and lined with the finest grass-stems. It measured roughly 4×2 inches.

The two eggs are rather deeper blue in colour than those of the Assam Orange *Suthora* but similar in texture and shape. They measure 15.3×12.5 and 16.0×12.5 mm.

Suthora webbiana.

THE OLIVE-BROWN SUTHORA.

(99) **Suthora webbiana brunnea** Anderson.

THE YUNNAN, OF ANDERSON'S, OLIVE-BROWN SUTHORA.

Suthora webbiana brunnea, Fauna B. I., Birds, 2nd ed. vol. i, p. 112.

This Suthora is found from the Kachin Hills to Yunnan. Captain Harington obtained this bird breeding in great numbers round Sinlum Kaba at 6,000 feet in 1905 and, later in 1909 and 1910, Captain Tancock also procured a series of its eggs.

Captain Harington records his notes on its nidification as follows (Journ. Bomb. Nat. Hist. Soc. vol. xvi. p. 740, 1906):—

“I was fortunate in finding four nests of this interesting little bird, up at Sinlum Kaba (6,000 feet), Bhamo District, Upper Burma. The first nest was found on the 30th May in a patch of reeds growing in the Government garden. The birds first attracted my attention by their continuous twittering, while my dog was working in some long grass and reeds growing in a swamp. I felt certain there was a nest somewhere near so, carefully marking the spot, I went away. On returning sure enough a bird got up somewhere, but it was impossible to say where until, by repeating the practice three or four times, I was fortunate at last in seeing the exact clump from which the bird came out, and so found the nest, which was placed in the middle of a clump of reeds, about 18" from the ground, and so well concealed that it would have been impossible to find unless the bird had been seen leaving. It took me the whole afternoon to find the nest and shoot the bird. The nest was rather a deep cup-shaped structure composed of bamboo leaves and coarse blades of grass, lined with finer grass and a few horse-hairs, measuring about 4" by 3½" outside, 2"×2" inside. It contained three highly incubated eggs of a bright pale blue.

“The other nests were easier to find after the bird's notes and habits were known, as in each case they drew attention to their whereabouts by their twittering. I used then to mark the spot with a stick and go away and sit down; as soon as all was quiet I came back, when the noise would begin again and eventually the bird would be seen leaving, when after a careful hunt most probably the nest would be found.

“The three nests were found near each other on the same spur of the hills on the 1st June, and were placed as follows:—One in a clump of thatching grass at about one foot from the ground, another placed on a bramble in some grass about two feet from the ground, and the third in a patch of grass growing under a thorn-bush, and contained 3 young birds, 3 eggs and 2 eggs, respectively. The eggs were hard set, but blowable.”

The eggs are similar to those of the Orange Suthora's but larger and rather darker blue. One curious egg taken by Captain Tancock has a well defined cap of blue much darker than the rest of the egg.

Thirty-two eggs average 16.6×13.1 mm. : maxima 18.2×14.0 and 17.9×14.1 mm. ; minima 15.0×12.2 and 15.7×12.1 mm.

Suthora ruficeps.

THE RED-HEADED SUTHORA.

(102) Suthora ruficeps atrosuperciliaris Godw.-Aust.

THE BLACK-BROWED SUTHORA.

Suthora ruficeps atrosuperciliaris, Fauna B. I., Birds, 2nd ed. vol. i, p. 114.

The Black-browed Suthora is found from the hills South of the Brahmapootra through Northern Burma to Yunnan but, so far, has only been found breeding in North Cachar and the Khasia Hills though it is resident and doubtless does breed wherever found.

The first known clutch of eggs was taken by a Naga near Laisung, probably at about 3,000 feet elevation. The three eggs, except that they were pale and bleached, from having been badly blown and kept in the open, were like one taken at a subsequent date by myself in Boro Ninglo in 1893, 7th July. This latter was first found by a Naga, who set nooses on the nest and then came to tell me about it. On visiting the nest I found the female caught in one of the nooses and I then took the bird, nest and the single egg it contained.

Outwardly the nest is composed of fine shreds of grass and whitish grass-bark ; within this are a considerable number of rather broad pieces of bamboo-leaves, the final lining consisting of a few dark-coloured grass-stems, a few shreds of the outer bark of some weed, and a few small scraps of tree-bark. The colour of the outer nest is yellowish-white, that of the inner darker and browner. The general character of the nest is typical of the Parrot-Bills but less neat and compact than those of *Paradoxornis*. In shape it is a deep cup, measuring outwardly about 3.1×2.45 inches, whilst the inner cup is about 1.8×1.7 inches.

It was placed in a thick bamboo-clump, in a cluster of twigs growing from a bamboo on the outside of the clump and was rather over 6 feet from the ground. The clump in which it was built was one of some half dozen growing on a steep grass-clad slope of a hill at Guilang at about 4,000 feet elevation.

The single egg is Hedge-Sparrow's egg blue and measures 19.5×15.2 mm.

In 1926, on the 29th April, Nissor Singh, one of my collectors, took a bird, nest and three eggs of this Suthora at Cherrapoonji,

which he forwarded to me. Nest and eggs are just replicas of those taken by myself but the nest was attached to coarse reeds growing with Elephant-grass in a swampy piece of land below Cherrapunji, at an elevation of about 3,000 feet.

Psittiparus ruficeps.

THE RED-HEADED PARROT-BILL.

(104) *Psittiparus ruficeps ruficeps* (Blyth).

THE SIKKIM RED-HEADED PARROT-BILL.

Psittiparus ruficeps ruficeps, Fauna B. I., Birds, 2nd ed. vol i, p. 116.

The breeding range of this Parrot-Bill is from Sikkim to the extreme East of Assam, North of the Brahmapootra. Gammie obtained one nest in Native Sikkim at an elevation of 2,000 feet, containing three eggs, in May. He describes the nest as being in no way different from those found by myself later in North Assam. It was found "seated among and fastened to the spray of a bamboo near its top, and is a deep compactly built cup, measuring externally 3·5 inches wide and the same in depth; internally 2·7 wide by 2·9 deep. The material used is particularly clean and new-looking, and has none of the second hand appearance of much of the building stuffs of many birds. The outer layer is of strips torn off large grass stalks and a very few cobwebs; the lining of fine fibrous strips, or rather threads, of bamboo stems."

The above description of Gammie's is excellent and would stand for practically every one of the few nests I have taken myself. The compactness, neatness and yellowness of the nest have always been conspicuous features. In Assam the Brahmapootra is the dividing line between the two races North and South but the Northern race extends East beyond the Brahmapootra to the Dihong and the Dibong, as I obtained it in Sadiya. Here the nest was placed in a fork of a branch of a small sapling growing in evergreen forest at an elevation of about 1,200 feet. Two other nests taken by myself were placed in bamboos, not in high sprays like that taken by Gammie, but in clusters of fine twigs 5 or 6 feet from the ground.

Stevens found it breeding in North Lakhimpur "in dense thickets of reeds, 'ekra' and 'toia,' or wild cardamums, in 'hoolahs' (wet pockets of jungle) and low lying ground, and also in the mixed grasses of the wide grass plains along the banks and bed of the Subansiri and other rivers." Two nests sent to me, with three and two eggs respectively, were taken from such places on the 8th and 25th June, fastened to stout high reeds about 4 feet from the ground.

This bird breeds from late April to the end of June and from the level of the Plains up to some 4,000 feet.

The eggs number two or three, possibly rarely four as in the next race, and are of two types. In one the ground-colour is white to very pale clay-colour or dull creamy, marked with light to dark brown and with secondary markings of lavender or yellowish-grey. In the second type the ground is blue-grey or greenish-grey and the marks are of darker brown, often with a few nearly black and others a paler reddish-brown. In both types the marks consist of smudges and ill-defined blotches with here and there one bolder and more distinct from the rest, occasionally forming short broad lines. In fact many eggs are very like those of the English Blackcap. In all eggs the blotches are more numerous at the larger end and in a few they are confined entirely to this part of the egg, forming rings. The texture is rather fine, smooth but glossless and not very close, whilst in shape the eggs are broad obtuse ovals.

Twelve eggs average 22.6×16.7 mm.: maxima 23.4×16.1 and 23.1×17.5 mm.; minima 22.0×16.2 and 23.4×16.1 mm.

(105) *Psittiparus ruficeps bakeri* (Hartert).

THE ASSAM RED-HEADED PARROT-BILL.

Psittiparus ruficeps bakeri, Fauna B. I., Birds, 2nd ed. vol. i, p. 117.

This Parrot-Bill is extremely common in Assam, South of the Brahmapootra, from the Khasia Hills to the extreme East, whence it is found still further East to Yunnan and South to Tenasserim. In Assam it occurs from the foot-hills and even the plains immediately adjacent to them up to at least 6,000 and probably up to 8,000 feet in the Naga Hills. In the foot-hills they seem to breed principally in the vast stretches of Elephant-grass at the edge of the plains or in the smaller reed-beds which run up between the hills. A little higher, say between 1,500 and 2,500 feet, they haunt wet ground in forest- or bamboo-jungle where reeds and scrub grow. Above this height they frequent bamboo-jungle, scrub, secondary growth and both light and heavy forest. In the highest elevations I have found them in real virgin evergreen forest of mighty trees, dense undergrowth and cool humid atmosphere. Wherever they may breed, however, the nest does not alter. It may be placed in a small sapling in evergreen forest, in a clump of bamboo in bamboo-jungle or among reeds and canes in the sweltering swamps but always it will be the same very neat compact cup already described as being made by the preceding bird. In the low country they breed in April and May but the dense *ekra*-covered swamps are hard to search and though one may catch a brief glimpse of a small red-headed, fluffy-looking bird and may hear the constant snapping of their bills as they move about, they are hard to watch on to a nest and so few of the latter are found. Above 2,000 feet they breed in May and June though I have taken eggs as early as the last week in April and as late as the end of July.

The eggs are, of course, quite the same as those of the Sikkim bird.

Forty-seven eggs average 21.5×16.7 mm. : maxima 23.3×16.9 and 22.6×17.4 mm. ; minima 18.4×16.8 and 20.1×15.9 mm.

This bird also lays two to four eggs but two is, undoubtedly, the number most often laid, three less often and four quite exceptionally. The parent bird does not sit very close but soon returns to the nest and is very fussy when any person or animal is anywhere near it.

Psittiparus gularis.

THE GREY-HEADED PARROT-BILL.

(106) **Psittiparus gularis gularis** (Gray).

THE SIKKIM GREY-HEADED PARROT-BILL.

Psittiparus gularis gularis, Fauna B. I., Birds, 2nd ed. vol. i, p. 118.

The range of this Parrot-Bill's breeding area extends from Sikkim to Eastern Assam, North of the Brahmapootra. Birds from East Lakhimpur I place with this form with some hesitation but they seem nearer to the Northern than to the Southern race. Very little is known of the breeding of the typical form of Grey-headed Parrot-Bill. Mandelli took one nest with two eggs, of which the nest and one egg were sent to Hume and are described twice over by Oates in Hume's 'Nests and Eggs.' Mandelli describes the nest, which was taken on the 17th of May, at 8,000 feet in Native Sikkim, as follows :—

"It was placed in a fork amongst the branches of a medium sized tree at a height of about 30 ft. from the ground. The nest is a very massive cup, composed of soft grass blades, none of them exceeding 1 inch in width, wound round and round together very closely and compactly, and then tied over exteriorly everywhere, but not thickly, with just enough wool and wild silk to keep the nest perfectly strong and firm. Inside the nest is lined with extremely fine grass-stems ; the nest is barely 4 inches in diameter exteriorly and 2.5 in height ; the egg cavity is 2.4 in diameter and 1.2 in depth."

Coltart and I never took the nest in Margherita but we had it brought to us by Nagas of the Patkoi Range and it must have been fairly common about 5,000 feet elevation during the breeding season.

The only other clutch I know is one taken by Stevens in the Miri-Dapla Hills but the nest was not described. It was apparently taken on the 2nd April at about 3,000 feet. The eggs are of the clay-coloured type of those of the Red-headed Parrot-Bill and could be matched exactly by some of both these and of the Burmese Grey-headed Parrot-Bill.

They measure from 20.5×15.0 to 20.8×15.5 mm.

(107) *Psittiparus gularis transfluvialis* Hartert.

THE BURMESE GREY-HEADED PARROT-BILL.

Psittiparus gularis transfluvialis, Fauna B. I., Birds, 2nd ed. vol. i, p. 118.

This Southern race of Grey-headed Parrot-Bill breeds throughout the hills of Assam South of the Brahmapootra ; the Chin, Kachin and other hills to Central Burma. They are very common in Assam between 2,500 and 7,000 feet, when once you know their habits and how and where to look for them. In the Chin Hills also Mackenzie obtained a wonderful series of their nests and eggs between 2,000 and 5,000 feet. In Burma Mackenzie and Hopwood found them breeding almost entirely in the last week of April and the first two weeks of May but in Assam, though most eggs may have been laid during those three weeks, I continued to find nests with fresh eggs, incubated eggs or young until the end of June and I have one set marked "9. 7. 08."

The principal differences between this bird's nidification and that of the Red-headed Parrot-Bill are that the latter breeds at lower elevations and perhaps keeps more exclusively to reeds and bamboos on which to fasten its nest.

Most of the nests of the present bird which I found personally were taken in evergreen forest at an elevation of about 4,000 feet and nearly all of them were built on small saplings between 6 and 10 feet up ; the saplings themselves rather bare but with dense vegetation surrounding them. A specially favoured stretch of virgin forest was one which grew on the very steep side of a hill, much broken up with rocky ravines and huge jutting boulders. Here every year we found two or three nests within a space of a few hundred yards. Although within the area of short rainfall, something between 25 and 50 inches a year, the forest was always cool and damp and the birds haunted the most cool and shady spots. The nests were like that described by Gammie, very neat, compact cups of grass, well bound with wild silk and cobwebs and often having a fluffy substance outside, probably taken from the pith of coarse grasses. Once or twice I found dark moss-roots or very fine black rhizomorph used for the lining but in the great majority of cases the lining was of the very finest grass-stems and shreds of grass-bark, yellowish in colour like the outside.

The parent birds were very shy, nearly always slipping off the nest before we could spot them but, if we hid and kept quiet, they would return very quickly and it was usually only the work of a few minutes to trap both parents and, after examination, release them. I have known a pair of these birds lay a second time in a nest on which they had been caught and the eggs removed, but generally after the loss of their first clutch they build a new nest within a few yards of the old one.



PSITTIPARUS GULARIS TRANSFLUVIALIS.

The Burmese Grey-headed Parrot-Bill.

(North Cachar, 26.4.91.)

The description of the eggs of the three preceding Parrot-Bills suffices for this also.

The average of seventy-one eggs is 21.1×15.9 mm.: maxima 23.0×17.0 and 22.0×17.3 mm.; minima 19.3×14.9 and 20.7×14.3 mm.

It is curious that eggs taken in Burma average longer yet more narrow than those taken in Assam, of which forty average 20.7×16.2 mm.

Family SITTIDÆ.

(108) *Sitta himalayensis* Jard. & Selby.

THE WHITE-TAILED NUTHATCH.

Sitta himalayensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 122.

The White-tailed Nuthatch breeds in the Himalayas from the Kangra Valley to Assam North of the Brahmapootra, at all elevations from 5,000 to 11,000 feet, but most often between 7,000 and 8,000 feet, though Blanford obtained it at 11,000 feet in Sikkim and Stevens at Tonglo, in the same country, at 10,000 feet.

It occurs regularly but not numerously and breeds at Naini Tal, Simla, Mussoorie etc.; it is apparently more common in Nepal and is comparatively more numerous still in Sikkim.

It is an early breeder, commencing occasionally to lay in the end of March, whilst most eggs have been laid by the end of April, a few odd clutches only being laid in early May. It is true Thompson records it as breeding in the Kuman in May and June but Hume received no eggs laid in those months and Whymper found it breeding in that district quite early in April, whilst Mackinnon took a nest at Mussoorie on the 19th of that month.

The birds build their nests both in forest and in more or less open country but they seem generally to select Oak-trees standing in Oak, or Oak and mixed forests. Like nearly all Nuthatches they select some small natural hollow in a tree, of which they reduce the entrance in size to a very neat little circular hole about $1\frac{1}{2}$ inches or less in diameter. The material with which the "closure is applied" is probably composed of mud and berries mixed into a sort of clay, hardening into solid masonry which it takes a knife or chisel to cut out. I do not know personally exactly what the clay is made of but I have a strong suspicion that it is sometimes taken from termites' mounds, for twice I have seen the Chestnut-bellied Nuthatch collecting something, not termites, from these mounds during the breeding season. The hollow selected for the nest varies considerably and, though generally it is a small one, a quite big one, deep down is sometimes chosen. Nor is the bird particular about the height of the hole from the ground, perhaps most often it is about

15 to 25 feet up. Col. G. F. L. Marshall, however, took one nest from about 10 feet and another about 5 feet from the ground. The nest itself is a pad of green moss, rarely of dried moss, and is lined with small black moss-roots, the whole fitting into the bottom of the cavity in which it is placed.

The eggs number from five to seven in a full clutch. The ground is white and they are thickly covered with spots and small blotches of dark red, generally more numerous at the larger end, where they may form an ill-defined ring. In one clutch of four taken by Whymper the very small blotches are almost confined to a narrow well-marked ring at the greater extremity, being sparse elsewhere. The secondary markings, if any are present, are confined to a few faint reddish spots.

In shape they are broad ovals, sometimes rather lengthened, the texture fine but the surface almost glossless.

Twenty-five eggs average 18.6×13.4 mm. : maxima 19.3×13.9 and 18.3×14.0 mm. ; minima 17.0×13.1 and 19.2×13.0 mm.

Sitta castanea.

THE CHESTNUT-BELLIED NUTHATCH.

(110) *Sitta castanea castanea* Lesson.

THE CHESTNUT-BELLIED NUTHATCH.

Sitta castaneiventris castaneiventris, Fauna B. I., Birds, 2nd ed. vol. i, p. 123.

Sitta castanea castanea, ibid. vol. viii, p. 598.

This little Nuthatch breeds over practically the whole of Northern India as far South as the Wynaad, as far West as Umballa and Khandesh and as far East as Calcutta. I personally obtained it, though rarely, in both Nadia and the 24th Parganas in Eastern Bengal. It is extremely common from Eastern Behar to the Northern parts of the United Provinces.

I think the normal breeding months of the Chestnut-bellied Nuthatch are March and early April but Inglis has taken eggs as early as the 26th of February in Behar whilst Bingham took them as late as July and September round Allahabad. At Sitapur in Oudh Captain Cock, who took many nests, obtained them all in March.

The favourite trees for breeding in are undoubtedly Mango-trees, and these may be growing in a Mango-orchard, in an avenue or as a solitary tree in garden, cultivated land or well-wooded plain. In Behar the majority of nest-holes selected are at heights from 10 to 15 feet and Dr. Coltart informed me that he had taken many nests whilst standing on the saddle on a well-trained polo pony. Occasionally the nest may be as high up as 25 or 30 feet in a tree; on the other hand it may be very low down, such as one mentioned by Cock, only 2 feet from the ground. The entrance to the hole is

always plastered up with mud (?), which attains the usual solidity of Nuthatch masonry, the mud being sometimes extended on to the walls in the interior of the nest-hole. The circular entrance left is very small, often not more than an inch across. Unlike the hill Nuthatches, this bird makes only a very rough nest of scraps of moss, a few dead leaves or bits of grass ; often, indeed, the only material is the dead touchwood from the inside of the tree.

The eggs number two to six, but probably two is an incomplete clutch whilst, on the other hand, six is quite exceptional. Four or five are normal and four rather more usual than five. They only differ from the eggs of the Himalayan Nuthatch in being much less boldly and profusely spotted. In the great majority of eggs the specks are quite small and are scattered over the whole surface of the egg, and hardly more numerous at the larger end than elsewhere.

Sixty eggs average 17.0×16.5 mm. : maxima 18.2×14.0 mm. ; minima 16.0×13.1 and 16.1×13.0 mm.

These Nuthatches, like most others, are very fearless little birds and very close sitters, seldom leaving the nest-hole until the masonry has been cut away. Often indeed they will allow themselves to be taken out by hand, returning at once to the nest when released. They will return to the same site, often to the same nest-hole, year after year, merely repairing the masonry and cleaning up the inside of the hole and perhaps adding a little fresh rubbish of sorts. Both birds take part in incubation, which takes eleven or twelve days.

(111) *Sitta castanea cinnamoventris* Blyth.

THE CINNAMON-BELLIED NUTHATCH.

Sitta castaneiventris cinnamoventris, Fauna B. I., Birds, 2nd ed. vol i, p. 125.

Sitta castanea cinnamoventris, ibid. viii, p. 598.

The Cinnamon-bellied Nuthatch breeds from Sikkim to the extreme East of Assam. It is very common South of the Brahmaputra, whence it extends into Manipur, the Lushai Hills and Chittagong Hill Tracts.

Gammie took a nest of this Nuthatch in Sikkim at 2,000 feet which was placed in a decaying bamboo 20 feet from the ground. The nest was so different from all those I have taken that I give Gammie's description in full :—"The birds had made a small hole just below an internode and from the next internode below had filled up the hollow of the bamboo with alternate layers of green moss and pieces of tree bark, of about an inch or more square, to within a few inches of the entrance-hole. Each layer of moss was about an inch thick, but the bark layer not more than a quarter of an inch, the thickness of the bark itself. On the top of this pile, which was a foot high, was a pad three inches wide and two in depth, of fine moss, fur, a feather or two and a few insects'

wings intermixed, for the eggs to rest on. The fur looks like that of a rat."

In North Cachar we found that almost invariably the birds laid in natural hollows in trees, making a nest of moss covered with a thick pad of fur as a receptacle for the eggs. The moss might be green or dry but very little else but moss was used. There might be a few pieces of bark or a few leaves or perhaps a little wind-blown rubbish under the moss, but nothing more. The fur was generally that of mice, shrews, rats or Bamboo Rats but, whatever it was, always very soft.

In the Khasia Hills trees were selected as nesting-sites about once only in every twenty times. The other nineteen were always places in holes in stone-retaining walls so beloved by many Titmice. The entrance to the hole, whether in tree or wall, was always reduced in size to a tiny circular hole, about $1\frac{1}{2}$ inches in diameter, by a substance like very hard clay. So addicted are the birds to this masonry work that often when the hole selected was already small enough the walls outside and inside would be plastered and just a coat put round the natural entrance. The bottom of the cavity was always filled with moss and, when it was large, this often took up an immense amount of material.

The birds are very close sitters and I have often taken them on their nests. They are also very persistent and sometimes when I have left the eggs after inspecting them the hen would return before I had left and, within a few minutes, the cock would be at work repairing damages to the masonry entrance.

They use the same nesting-site several years in succession if they are not interfered with and, sometimes, even when the nests are rifled by human beings, will return again and again and use the same hole, merely repairing the masonry. Some birds, however, quit as soon as the masonry has been tampered with. If a nest is interfered with by vermin they clear out at once.

The eggs number five to seven, four being occasionally incubated. In appearance they are just large replicas of the eggs of the preceding bird, rather more boldly marked on the whole yet not quite so densely as those of the Himalayan Nuthatch.

Sixty eggs average 19.8×14.1 mm : maxima 21.0×14.4 and 20.0×15.3 mm. ; minima 17.3×13.6 and 18.8×13.2 mm.

(111 a) *Sitta castanea almoræ* Kin. & Whist.

THE WESTERN CINNAMON-BELLIED NUTHATCH.

Sitta castaneiventris almoræ Kinnear & Whistler, Bull. B. O. C. vol. li, p. 27, Dec. 1930.

Sitta castanea almoræ, Fauna B. I., Birds, 2nd ed. vol. viii, p. 598.

This race has been rightly separated by Messrs. Kinnear and Whistler on account of its pale coloration.

There is nothing on record as to the nidification of this Nuthatch, which breeds throughout the outer Himalayas from Kuman to Garhwal, but several nests were taken by Whymper in Naini Tal. All these nests were made in holes in trees and differed from those of the last bird in having very little moss used in their construction, the principal material being chips of bark. The entrances in two cases were closed up with clay as usual, but in the third instance no clay at all was used.

They were taken at an elevation of about 4,500 feet, two in open forest and one from a roadside tree.

Two clutches of six eggs in my collection differ considerably from one another. They are typical Nuthatches' eggs in shape, texture and colour but, whilst one is rather feebly marked with tinyspecks of reddish, the other is much better marked with reddish-brown in bigger and more numerous blotches.

Thirty eggs average 19.4×14.8 mm. : maxima 21.2×14.3 and 20.0×15.3 mm. ; minima 17.3×14.4 and 17.6×13.7 mm.

The breeding months are April and May.

Ward records this as a common breeding bird in Kashmir and Whymper once took a nest from a tree on the roadside to Pahlgam.

(112) *Sitta castanea neglecta* Walden.

THE BURMESE NUTHATCH.

Sitta castaneiventris neglecta, Fauna B. I., Birds, 2nd ed. vol. i, p. 126.

Sitta castanea neglecta, ibid. vol. viii, p. 598.

The Burmese Nuthatch is a breeding resident from the Bhamo and Kachin Hills to Muleyit Mountain in Tenasserim. It is also found in the Chin Hills but specimens obtained in this area somewhat approach the Cinnamon-bellied Nuthatch in the colour of the underparts, though, on the other hand, they are very small and in size about the same as the Burmese Nuthatch.

This Nuthatch is an early breeder, most birds having eggs in March, whilst others breed as late as the end of April. The first person to take the eggs was a Capt. Hare, who gave them to Major H. H. Harington. They were taken on the 22nd April and a note says: "No mud at entrance. Eggs on the point of hatching." Then Hopwood took a beautiful set of six on the 21st March, 1912. This was taken from "a small hole in a *Dipterocarpus tuberculatus* at about 30 feet from the ground. The entrance was very small and there was no mud, whilst the nest consisted of just a few leaves with no fur or feathers."

Later again Mackenzie took other nests which were more normal : "thin pads of grass and fibre with a super-pad of blue-grey fur like the underfur of a langur, a few feathers and in one case fragments of cast snake skin." In one nest there was a little mud round the

nest-hole, in the other none; this was the more curious as the entrance-hole was about 3 inches across.

The average of fifteen eggs is 18.8×13.9 mm. : maxima 19.4×14.1 mm. ; minima 16.2×13.4 mm.

Except for being smaller, as we should expect, the eggs are just like those of the other races.

Sitta europæa.

THE NUTHATCH.

(113) *Sitta europæa nagaensis* Godw.-Aus.

THE NAGA HILLS NUTHATCH.

Sitta europæa nagaensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 127.

This Nuthatch is found throughout the ranges South of the Brahmapootra and from there into the Chin and Kachin Hills. Harington says that in Eastern Burma it is restricted to hills over 5,000 feet, below which *Sitta neglecta* takes its place. This, however, is not quite correct as that bird also is found over 5,000 feet, as well as much lower.

Harington obtained its nest and eggs from Kachins, with the parent birds captured on the nests, in April, whilst in June he saw a pair of birds "building." These eggs, now in my collection, were said to have been taken "from holes in trees, most nests lined with fur." Two eggs in the Tancock collection, and taken by Capt. O. K. Tancock, were found at Sinlum Kaba, where Harington got his eggs, on the 20th April. A note on these eggs runs: "Nest and eggs of a Nuthatch taken by O. K. Tancock at Sinlum. Said to be *Sitta nagaensis*. The nest is merely a pad of fur, probably rat's, which has evidently fitted into a hole in a tree, as scraps of dead wood and bark are adhering to the sides and bottom of the nest."

The eggs are like all other Nuthatch eggs and the few taken have varied from very pale and feebly speckled specimens to others well marked and blotched.

Eight eggs average 18.6×13.8 mm. ; maxima 19.0×14.2 mm. ; minima 17.2×13.0 and 18.1×12.9 mm.

Harington, in one of his notes on his own collection, says that these Nuthatches "select forest trees with holes in them for their nesting places," and in another note he refers to seeing "a pair of birds about a large tree by a roadside in which they were evidently going to nest." This was near Sinlum and probably a road running through forest.

(114) *Sitta kashmiriensis* Brooks.

THE KASHMIR, or BROOKS'S, NUTHATCH.

Sitta kashmiriensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 128.

This, the best known of all our Himalayan Nuthatches, breeds from the borders of Afghanistan to Garhwal. Fulton records it as very common between Dir and Chitral and on the Kafiristan Frontier at elevations up to 11,500 feet; Whitehead also refers to it as common on the Safed Koh from 7,500 to 10,000 feet. Ward only mentions that it is found in Kashmir but he took many nests there in many places, so that it would appear to be widespread and very common. Jones does not record it from the Simla Hills but Whympers has met with it in Garhwal. The lowest elevation I have recorded for its breeding is 4,500 feet by Whympers at Naini Tal. Ward has taken nests at 8,000 and 9,000 feet and it probably breeds up to 10,000 feet.

They commence breeding in the end of April but they are not so early as most Nuthatches and the majority of eggs are laid in May. The nest-hole is nearly always situated in a tree at any height from 10 to 30 feet from the ground, while the tree selected may be either in open or deep forest or, nearly as often, one of a clump in well-wooded open country. Any hole may be used for the purposes of a nest and sometimes the deserted nesting-hole of a Woodpecker or Barbet is taken possession of. If the entrance is deemed too large it is reduced by masonry work until a circular hole about $1\frac{1}{2}$ inches, or less, is left. Sometimes this masonry is continued for some inches as a thin layer on the inside of the tree next the entrance. The masonry has never been carefully examined but some broken up by myself and melted showed small seeds and looked exactly like the mud or clay used by termites worked up with some sticky, glutinous berry. It is often very hard and defies one's fingers to break it down, whilst at other times it is quite friable and comes away easily.

I have no record of its breeding in walls but it may do so occasionally.

The normal clutch of eggs is five to seven but eight have been taken. They are quite typical Nuthatches' eggs, generally well, and sometimes handsomely, marked. A clutch of seven taken by Col. K. Buchanan at Pahlgam is very handsome, one egg having a great red blotch about 5×5 mm. In shape they are rather longer and more compressed at the smaller end than most Nuthatches' eggs, in addition to which they sometimes have a distinct gloss. Pale, feebly marked eggs must be exceptional for I have seen none such.

Fifty eggs average 19.7×14.4 mm.: maxima 20.5×15.0 and 19.4×15.3 mm.; minima 19.0×14.2 and 20.5×13.2 mm.

Sitta tephronota.**THE ROCK-NUTHATCH.****(116) *Sitta tephronota iranica* Buturlin*.****THE TURKESTAN ROCK-NUTHATCH.**

Sitta neumayer tephronota, Fauna B. I., Birds, 2nd ed. vol i, p. 129.

Sitta tephronota iranica, ibid. vol. viii, p. 598.

This Rock-Nuthatch breeds from Afghanistan and Baluchistan to Turkestan and the Tianschan during the whole of April and May at all elevations from 3,000 feet up to 8,000 feet or higher.

Betham and Williams both found this Nuthatch breeding freely round Quettah and the former sent me the following interesting note together with a fine series of eggs:—

“Fairly common round Quetta during Summer. We found nests from the 2nd April onwards till the 18th May. These, the nests, are placed in crevices and holes in the face of rocks, those selected often having smooth and much worn surfaces; sometimes they are placed under an overhanging ledge but this protection is seldom sought. The inside of the hole selected is then lined and roofed with a cement-like kind of clay and after this has been completed the bird then makes an enormous cone or inverted basin-shaped affair round and outside the hole of the same clay. Sometimes this inverted bowl projects as much as 6 or 8 inches from the face of the rock while it is even more than this in width. The entrance to this is generally near the centre and is often more or less tubular, protruding out for an inch or so. This clay is so hard that it is practically unbreakable with the hand and it must be an effective safeguard against vermin, even snakes and lizards. Whilst the mud is still more or less soft the bird decorates it with feathers and other odd scraps, the decorations often spread about the rock for some distance all round. The true nest is a mass of feathers, wool, fur or hair, often worked into a sort of felt much resembling ‘puttoo.’

“When a nest is broken open the birds will often repair it and lay in it again and, when they are sitting, it takes a great deal to make them leave.

“As a rule the nests are not built high up on the rock-face and are, more often than not, within easy hand’s reach.

“They lay six to eight eggs, possibly more, for I have twice taken full clutches from the same nest, which I had to break open each time to get at the eggs.”

Williams gives an exactly similar description and took nests with eggs up to the 20th May.

* See Stresemann, Orn. Monatsb. vol. xxxiii, 4, p. 109 (1915).

Barnes took a good many nests in Afghanistan and it is curious that there he found many built against holes in trees, which were invariably furnished with the same masonry inside and outside, while often feathers were used to decorate the bark of the trunk all round the nest. In Afghanistan he found four eggs to be the normal clutch, five unusual.

The eggs of the Rock-Nuthatches differ considerably from the eggs of other Nuthatches though they have the family characteristics. The ground is pure white and they are spotted and blotched with light chestnut to chestnut-brown, sometimes equally everywhere but generally more so at the larger end. The secondary markings are of pale pinkish-lavender, sometimes absent. In shape they are broad ovals very little compressed at the smaller end. The texture is harder, closer and more glossy than in other Nuthatches' eggs.

Fifty eggs average 21.1×16.1 mm.; maxima 22.3×15.5 and 22.1×16.8 mm.; minima 19.0×16.2 and 20.0×15.3 mm.

Sitta leucopsis.

THE WHITE-CHEEKED NUTHATCH.

(117) *Sitta leucopsis leucopsis* Gould.

THE HIMALAYAN WHITE-CHEEKED NUTHATCH.

Sitta leucopsis leucopsis, Fauna B. I., Birds, 2nd ed. vol i, p. 130.

The White-cheeked Nuthatch breeds throughout the North-West Himalayas from Afghanistan and Baluchistan to Garhwal. It is a bird of high elevations; in Chitral Fulton found it common in the Deodar forests from 7,000 to 12,000 feet; Whitehead says that in Kohat and the Kurram it is equally common from 8,000 feet up to the limits of forests. In Kashmir it breeds lower down, to about 7,000 feet, but on the Murree Hills again it appears to keep above 8,000 feet.

So far as is recorded, these birds are entirely tree-nesters and seem to keep to trees in forest and, in preference, to Deodars, Pines and other coniferous trees. Rattray and other collectors all obtained numerous nests of this Nuthatch, but all refer to the difficulty of finding their nests on account of the great height at which they often make them. Skinner writes of a nest at forty feet from the ground; Rattray in the Galis, near Murree, found others at over thirty, and so on. A favourite building-place is in a split in a tall tree-trunk caused by lightning or by some disease, whilst many birds resort to holes in the trunks and branches just like others of their kind. The nest varies greatly. Rattray obtained nests which consisted of nothing but a few leaves and a little grass, whilst both he and Buchanan got others which were well made

nests of moss with good linings of fur. I can find no record of this species ever using masonry round the entrance-hole to its nest, except that by Rattray who, in regard to one nest-hole, notes: "closed up with mud etc." Whympers says definitely that they do not use mud in finishing off their nest-holes, whilst other observers make no reference to it.

May seems to be the principal breeding month, though Buchanan took several nests in June, one on the 17th and a second as late as the 28th of that month. On the other hand Whympers took a nest with four fresh eggs as early as the 28th April, 1910, at Harsil, Garhwal Hills.

The number of eggs is generally six to eight, but four and five have also been found incubated and I have heard of, but never seen, a clutch of nine. They are quite typical Nuthatch eggs and seem to vary to much the same extent as do those of the *castanea* group. As a whole they are well, but not richly, marked. In shape they are fairly true ovals, a few being rather broad.

Seventy-five eggs average 18.05×13.8 mm.: maxima 19.2×14.4 mm.; minima 17.0×12.9 and 17.4×12.4 mm.

(118) *Sitta formosa* Blyth.

THE BEAUTIFUL NUTHATCH.

Sitta formosa, Fauna B. I., Birds, 2nd ed. vol. i, p. 131.

This most beautiful Nuthatch is found, and of course breeds, from Sikkim to the Chin Hills, while it has also been recorded from the Salwin-Mekong Divide and in the North-East Shan States.

It appears to be a rare bird everywhere and its predilection for deep forest of lofty trees prevents easy observation. It seems only to occur at elevations over 5,000 feet and only exceptionally below 6,000 feet.

The first nest taken of this Nuthatch was by myself in North Cachar at 6,000 feet on the 30th April. It was placed about 25 feet up in a tall forest tree, one of a clump of about a dozen very large trees growing in among, and towering over, stunted Oaks. A bird flew out of a narrow crevice in a huge branch and disappeared like a blue flash without any chance of my seeing what it was. A Naga with me eventually succeeded in climbing up to the nest and reported that the crevice was blocked up with clay, leaving a hole into which he could insert two fingers. Breaking this down, he found a nest with six eggs just chipping. They were unblowable, but I measured them and found they averaged 21.1×15.6 mm., too big for any Nuthatch I knew. Replacing the nest and eggs, he set a noose and in less than five minutes the hen was back and caught. After examination she was released and eventually returned to the nest. This was merely a thick pad of fur, but under the pad there were said to be some leaves and chips of bark.

My second nest was taken at 6,200 feet in the Khasia Hills on the 1st June. This was placed in a very small hole in a dead Rhododendron, consisting of a pad composed entirely of fur of the Bamboo Rat. It contained four addled and very small eggs, though the bird sat on them until we were quite close to her. The entrance to this hole was finished off with a kind of clay all round.

Two other nests were taken for me by my Khasia collectors and sent to me with birds and nests. These two nests, one taken from a Rhododendron and one from a live Oak, were both in holes about 8 feet from the ground and in both cases composed entirely of fur of Bamboo Rats. One was taken on the 28th April and one on the 7th May.

The eggs, which would seem to number four to six, are just like very large eggs of the Cinnamon-bellied Nuthatch, perhaps, proportionately, rather broader. The 20 eggs average, including the four small addled eggs, 20.8×15.3 mm.: maxima 23.7×15.9 and 23.2×16.0 mm.; minima 18.0×14.7 .

Sitta frontalis.

THE VELVET-FRONTED NUTHATCH.

(119) ***Sitta frontalis frontalis* Horsf.**

THE VELVET-FRONTED NUTHATCH.

Sitta frontalis frontalis, Fauna B. I., Birds, 2nd ed. vol. i, p. 132.

This is the most widespread of all our Nuthatches and is found all over well-wooded India and Burma, from the Himalayas in the foot-hills to Ceylon in the extreme South and East to practically the whole of Burma. For those who can separate the Indian and Javan forms into two subspecies ours in India will have to bear the name *Sitta frontalis corallina* Hodgs., the typical form having been described from Java.

In India the breeding season in the North is May and June, some birds laying in April. In Southern India the usual months are February and March. Miss Cockburn took a nest on the 10th of February in the Nilgiris but Davison records April and May as the most normal breeding months in Southern India. In the Chin Hills Mackenzie found them breeding in the end of April.

They are forest birds haunting both open and dense tree-forest, whilst, occasionally, they may be found nesting on single trees standing in comparatively well-wooded but open country. The hole may be either a natural hole in a dead branch or the trunk of a tree or a deserted nest-hole of a Barbet or Woodpecker. It may be at any height from the ground between 4 and 40 feet but is more often under than over 20. If the hole is small, and such are generally selected, no masonry is added to reduce the size or add to the finish but, occasionally, a good deal of it may be placed

about a hole too big for safety in the opinion of the birds using it. At times the birds will also enlarge entrances to holes not big enough to admit them otherwise. I think this little Nuthatch is most common between the foot-hills and about 2,500 feet, but I have taken its nest as high as 6,000 feet.

The nest is generally a substantial pad of moss, green or dry, with another pad of fur above that. A feature of this Nuthatch's nest is the very frequent inclusion of feathers both as lining and mixed in the lower pad of moss. Once or twice I have seen the lining composed of feathers alone but most birds use fur of some kind as the staple lining.

The birds sit very close but the nest is often given away by the restless little male, who will run all about the nesting-tree uttering his shrill little musical "cheep" all the time. I do not think they feed on the nesting-tree but, whenever the male returns to visit his wife, he always precedes his visit to the nest with a run round the premises first, squeaking all the time.

In Southern India the number of eggs in a clutch is three or four, in Northern India four or five. They are like small, rather broad and rather richly marked eggs of the *castanea* group, and some of them, with large red blotches, are very like Tits' eggs, rather than normal Nuthatches'. They are quite glossless.

Fifty eggs average 17.2×13.2 mm.: maxima 18.0×13.4 and 17.9×13.8 mm.; minima 16.0×12.3 mm.

Family TIMALIIDÆ.

Subfamily TIMALIINÆ.

(120) *Dryonastes ruficollis* Jard. & Selby.

THE RUFOUS-NECKED LAUGHING-THRUSH.

Dryonastes ruficollis, Fauna B. I., Birds, 2nd ed. vol i, p. 139.

This Laughing-Thrush is very common at low elevations in Sikkim, where both Gammie and Mandelli took numerous nests between the foot-hills and 4,000 feet elevation. In Bhutan and the hills of Assam North of the Brahmapootra it is not nearly so common but in the hills South of that river it is the most common of all the Laughing-Thrushes from the Plains up to about 2,000 feet. Above that height it is almost a rare bird, though it straggles up to 4,000 feet. In the Chin Hills it seems to be quite an uncommon bird, though it has been recorded from still further East in the Bhamo Hills.

The birds breed in all kinds of cover. I have myself seen nests built in a small patch of scrub-jungle just outside the kitchen of one of the rest-houses on the Shillong-Gowhati Road and I have seen others built in the deepest parts of humid, evergreen forest. Either extreme is, however, unusual and, above every other kind, these Laughing-Thrushes love scrub, secondary growth in deserted cultivation, or mixed scrub and bamboo-jungle. If such cover is dotted about with little open spaces so much the better, for the flocks can then indulge in a noisy game of "follow-my-leader" across these spaces, each venture into an opening being a good and sufficient reason for an outburst of raucous cackling and an appearance of the greatest anxiety, which temporarily subsides when the opposite cover is gained.

The nests are always placed low down and, of the hundreds I have seen, none has been placed over 20 feet and very few over 10. Most nests are placed 3 to 5 feet up in bushes, brambles, cane-brakes or bamboo-clumps and I have known some almost resting on the ground in dense tangles of creepers and bracken.

The nests, according to Mandelli, are neat cups, but most of those I have found I should call rather untidy exteriorly, as the ends of the materials are seldom tucked in at all neatly. They are rather deep cups, the inner cup somewhere about 4 inches in diameter by about 2 inches deep, almost true hemispheres. Outwardly they may measure, exclusive of odd ends, about 6 inches wide by 3 inches deep. The outer materials consist of leaves, grass, roots, weed-stems, occasionally dry moss and lichen, all bound together with long weed-stems and tendrils. Some nests are composed principally of bamboo-leaves but in these the outermost materials are generally long tendrils which keep these loose slippery leaves together. As a rule the nests are rather well concealed and, when the eggs are incubated, the hen slips off them and goes away with stealth but, when fresh, she often makes so much commotion that it is impossible not to see and hear her.

In Sikkim they breed mainly in May but in Assam they seem to be breeding almost equally all through April, May and early June and I have taken eggs from the middle of March to the middle of August.

The eggs are a very pale skim-milk blue, very rarely pure white or almost so, equally rarely a rather darker blue. The surface is highly glossed and the texture very hard, close and fine, but the shells are not thick in proportion to the size. In shape the eggs range from a short stumpy oval to one slightly peg-top-shaped or rather longer and pointed.

I have one clutch of three eggs, quite abnormal, of which one is spotted at the larger end with red-brown pigment, whilst a second has a few hardly discernible specks of reddish.

Two hundred eggs average 25.7×20.0 mm. : maxima 28.2×21.0 and 25.9×21.1 mm. ; minima 22.8×19.1 and 23.8×19.0 mm.

(121) *Dryonastes nuchalis* Godw.-Aust.

THE CHESTNUT-BACKED LAUGHING-THRUSH.

Dryonastes nuchalis, Fauna B. I., Birds, 2nd ed. vol i, p. 140.

Ogle's Laughing-Thrush, as this bird has hitherto been called, breeds in the hills South of the Brahmapootra from the Naga Hills to E. Lakhimpur, but does not occur in any of the hills of the Surma Valley or in Manipur.

The first known nest of this Laughing-Thrush was brought in to Dr. H. N. Coltart by Patkoi Nagas, together with the eggs and one parent bird, trapped on the nest. This was on the 28th June, 1901. From that year up to 1906 Dr. Coltart and I annually found a few nests round about Margherita, where the birds bred in thick scrub-jungle in the broken ground of the foot-hills. They were most common in the rocky, scrub-clad ravines running into the Dihing, where the thick bush and grass undergrowth contained a fair number of small saplings, the nests being always placed in densely foliated bushes between one and three feet from the ground. The nests are replicas of those of the Rufous-necked Laughing-Thrush but are bigger and, on the whole, neater and more compact. A great many nests had a good deal of bracken used in the outer part and I have seen no nests made chiefly of bamboo-leaves as is sometimes the case in the nests of the Rufous-necked Laughing-Thrush. Most nests had a definite inner lining of dead leaves and broad grass-blades, inside which came the true lining of moss and fern-roots, rachides and fibre. In many nests the outer part is so sodden and wet that it falls easily to pieces and will stand little handling.

The eggs number two or three, generally the latter in a full clutch, and in colour are a very pale blue with an occasional aberrant clutch of pure white or a rather deeper blue. The texture is fine and fairly close but normally without any gloss. One clutch of pure white eggs taken by Dr. Coltart has a glossy surface, but this is quite exceptional and the gloss, as well as the absence of all blue pigment, may both be considered abnormal. In shape they are rather broad ovals but with the smaller end distinctly compressed and sometimes rather pointed.

Forty eggs average 28.5×20.7 mm. : maxima 29.9×21.6 mm. ; minima 27.5×21.0 and 29.3×19.4 mm.

They are late breeders and nearly all our nests were found between the middle of May and end of June, though we got a few in March and April. The birds sit close, but slip very quietly into the low jungle when one gets within a yard or two of the nest, giving just a low chuckle as he or she disappears, for both sexes share in incubation.

Dryonastes chinensis.

THE BLACK-THROATED LAUGHING-THRUSH.

(122) **Dryonastes chinensis propinquus** Salvadori.

THE BURMESE BLACK-THROATED LAUGHING-THRUSH.

Dryonastes chinensis leucogenys, Fauna B. I., Birds, 2nd ed. vol. i, p. 141.
Dryonastes chinensis propinquus, ibid. vol. viii, p. 598.

This race of the Black-throated Laughing-Thrush is resident and breeds in the Southern Shan States, Tounghoo to the Southern half of Pegu, Tenasserim and South-West Siam.

Harington recorded the nesting of this bird in the Bombay Nat. Hist. Society's Journal, vol. xiv, p. 597 and described a nest and eggs taken by him in May 1902. The eggs, however, are certainly not those of the present bird.

The only naturalist to take the eggs is, I think, J. Cyril Hopwood, who took a clutch of three eggs from a nest built in a fork of a small tree on the 28th of April, 1919. The tree was one standing in thin forest with much undergrowth on Nwalabo Mountain in South Tenasserim at an elevation of about 3,000 feet. The nest is described as rather small in comparison with the size of the bird, cup-shaped and made of bamboo-leaves mixed with tendrils and long roots and lined with fine roots.

It contained three eggs which are white, with, perhaps, in some lights, the faintest tinge of blue, and they measure 31.4×22.4 , 31.2×22.6 and 31.9×22.5 mm.

The texture is fine but the eggs are not of the glossy type laid by *Dryonastes ruficollis*, *D. galbanus* and *D. sannio*.

Dryonastes caerulatus.

THE GREY-SIDED LAUGHING-THRUSH.

(123) **Dryonastes caerulatus caerulatus** Hodgs.

THE SIKKIM GREY-SIDED LAUGHING-THRUSH.

Dryonastes caerulatus caerulatus, Fauna B. I., Birds, 2nd ed. vol. i, p. 141.

The breeding range of this Laughing Thrush extends from Nepal along the whole of the Himalayas as far as Dibrugarh in Assam but, so far, the only records of nests and eggs are from Sikkim and Nepal.

Gammie found it breeding in the Chinchona Reserves about Sikkim during May and June between 3,500 and 5,000 feet. The nests he describes as "placed in trees, at heights from six to twelve feet from the ground, between and firmly attached to several

slender upright shoots. It is cup-shaped, usually rather shallow, composed of dry bamboo-leaves and twigs and lined with root-fibres. One I measured was 5 inches in diameter by 2·5 in height exteriorly ; the cavity was 4 inches across by 1·3 deep. Of course they vary slightly. As far as my experience goes they do not lay more than three eggs ; indeed at times only two."

Another nest described by Hume "was in shape a slightly truncated inverted cone, nearly 7 inches in height and 5·5 in diameter at the base of the cone, which was uppermost. The leaves attached to the twigs almost completely enveloped it. The nest itself was composed almost entirely of the stems of creepers, several of which were wound round the living leaves of the twigs so as to hold them in position on the outside of the nest. A few bamboo-leaves were intermingled with the creeper's stems in the body of the nest. The cavity, which is almost perfectly hemispherical, only rather deeper, is 3·5 inches in diameter and 2·25 in depth, and is entirely and very neatly lined with fine black roots.

"A second nest found in a bamboo-clump 10 feet from the ground was built of bamboo-leaves strengthened with a few creepers."

Nests taken later by Otto Müller in the Darjiling Chinchona Plantations agree with the above and were placed, one at 5 feet and the other 10 feet from the ground.

Finally, Stevens obtained it breeding in Native Sikkim at 9,000 feet.

Eggs have been taken in May and June and, once, in July. They are a pale blue in colour but vary considerably in depth. While none are as pale as the eggs of the *Dryonastes ruficollis* group, some are nearly as dark as those of *Garrulax moniliger*. The surface is smooth and slightly to highly glossed, whilst the shape is a long but rather blunt oval.

Fifteen eggs average $30\cdot5 \times 22\cdot1$ mm. : maxima $32\cdot5 \times 22\cdot6$ and $32\cdot0 \times 22\cdot8$ mm. ; minima $28\cdot5 \times 22\cdot2$ and $30\cdot0 \times 21\cdot7$ mm.

(124) *Dryonastes cærulatus subcærulatus* Hume.

THE SHILLONG GREY-SIDED LAUGHING-THRUSH.

Dryonastes cærulatus subcærulatus, Fauna B. I., Birds, 2nd ed. vol. i, p. 142.

This bird has only been recorded from the Khasia Hills in Assam, where it breeds between 4,000 and 6,000 feet during May and June.

This is one of the few species which keep almost entirely to Pine forests for breeding purposes, though I have occasionally found a nest in the mixed Oak and Rhododendron forest growing at almost 6,000 feet. In Pine forest they almost invariably select a small sapling, other than Pine, a high bush, or tangle of creepers or raspberry vines in which to place their nest. All these grow in the many ravines which run through the Pine woods, making, here and there,

little oases of growth greener and less sombre than the Pines all round them.

Most of the nests taken by me personally were placed between 4 and 7 feet from the ground, one at about 10 feet and one about 14 up in a Rhododendron-tree. No deliberate attempt is made to conceal them but some may be fairly well hidden by the surrounding foliage. The birds are quiet—for Laughing-Thrushes—and slink off their nests without giving them away and, even when the eggs are much incubated, do not wait for the close approach of a disturber.

The nests are broad, bulky cups, being somewhere between 6 and 7 inches in outer diameter and between $3\frac{1}{2}$ and 4 inches in depth, though odds and ends sticking out everywhere make them look larger still. They are built of leaves, twigs, roots etc., bound and compacted together with tendrils and weed-stems. Most nests have some grass among the other materials, some have bamboo-leaves and a few have a little moss, green or dried. The lining is nearly always of fine moss and fern-roots, sometimes of fibre. This is one of the few birds which use pine-needles as material for their nest and most nests have a certain number of these incorporated with the other materials.

The eggs vary a good deal in colour. The palest is as pale a blue as those of *Dryonastes nuchalis*, whilst the darkest is darker than any other eggs I have seen of this genus. They are never spotted and the texture is intermediate between the highly glossed eggs of the Rufous-necked Laughing-Thrush and those of the Chestnut-backed species. In shape they are nearly always long ovals, short broad ovals being quite exceptional.

Forty eggs average 29.3×20.8 mm.; maxima 31.6×20.8 and 30.1×21.8 mm.; minima 25.9×20.4 and 26.0×20.1 mm.

(125) *Dryonastes caerulatus kaurensis* Rippon.

THE KACHIN GREY-SIDED LAUGHING-THRUSH.

Dryonastes caerulatus kaurensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 143.

Apparently this race of Grey-sided Laughing-Thrush is not found outside the North and Central Kachin and Bhamo Hills, where Harington found it plentiful East of Bhamo at about 6,000 feet. Here he obtained one nest with two eggs and the parent bird in June. This nest Harington describes as "of the usual Laughing-Thrush type, being composed entirely of bamboo leaves and lined with fine grass." "The nest was placed in a clump of small mountain bamboos."

Mr. F. Grant took several nests round about Bhamo from early April to about the middle of June. The nests taken by him were made more or less of bamboo-leaves but, in most instances, they were bound together with a few long roots and weed-stems. The lining was sometimes of coarse and fine grass, at other times of roots

and fibre. They were placed in both bushes and in bamboo-clumps, situated in scrub-jungle, thin forest or in bamboo-jungle.

Two seems to be the full number of eggs in a clutch, and in colour they are a rather deep blue, much the same as many eggs of the Necklaced Laughing-Thrush. They are, however, much more glossy than the eggs of that bird, with a finer, smoother surface. In shape they are the usual long oval, not much compressed at the smaller end.

Twelve eggs average 30.5×21.4 mm.: maxima 21.1×21.3 and 30.1×22.1 mm.; minima 30.0×22.1 and 30.5×21.0 mm.

(126) *Dryonastes sannio* Swinhoe.

THE WHITE-BROWED LAUGHING-THRUSH.

Dryonaster sannio, Fauna B. I., Birds, 2nd ed. vol. i, p. 144.

This bird has a wide breeding range. It has straggled into Cachar. It occurs, but is rare, in Manipur and the Chin Hills, and becomes extremely common in the Kachin Hills and Shan States, whence again it has been reported from as far East as Fokhien.

The first nest ever taken of *Dryonastes sannio* was one found by me in North Cachar and was typical of the few others seen in that district. "In general appearance it was like the nests of *D. ruficollis*, but was larger and more massive in proportion. Outwardly it measured fully 6.6" in diameter, and the external depth was about 4", the measurements inside being about $3.5" \times 2.5"$. All the materials used were very dark and consisted of dead, almost rotten, sun-grass, fern and moss-roots, a few dead bamboo leaves, and one or two other leaves, all bound together with soft weed-stems and a few tendrils and lined with coarse fern-roots and fern-stems."

Some nests were made almost entirely of bamboo-leaves and grass.

My nests were all taken in dense virgin forest, or in strips of secondary growth or bamboo growing in between such forest. Some were in thick bushes quite low down, others in small saplings, but in the dozen nests seen during my fifteen years in North Cachar more than half were placed quite low down in thick bushes or in tangled raspberry vines.

Harrington was the first to describe this Laughing-Thrush breeding in Burma. He writes (Journ. Bombay Nat. Hist. Soc. vol. xix, p. 112):—"It is an early breeder; many nests found in April had young birds. All the nests found by me in the Kachin Hills were placed near the ground, either in bramble bushes or in thick grass, and not in saplings as those found in the Shan States.

"It lays two types of eggs, the commonest being a pure pale blue, the other, which seems to be found later in the season, a pure glossy white."

I found three or four eggs laid equally often, but Harington who, of course, saw many more eggs than I did, considers four to be the normal clutch, whilst he once found five.

Hopwood and Wickham also found many nests near Maymyio but seem to have found three eggs only quite as often as four. Hopwood also notes that he often found nests constructed partly of twigs.

The eggs are either white or very pale blue, rarely a little deeper blue but, at their darkest, much paler than the eggs of the Grey-sided group. Harington thought that the white eggs were those laid late in the season but, judging from the very large series which I have seen, over 200 eggs, this is not the case, white eggs being as common in April as in May, whilst all my deepest blue eggs were laid in the latter month. Wickham took a clutch of three eggs on the 30th March and I have seen two taken in June. All others were taken equally often in April and May.

In shape the eggs are rather broad ovals, as a rule not much compressed at the smaller end but, exceptionally, inclining to peg-top shape. *Dryonastes ruficollis*, *D. sannio* and *D. galbanus* can be distinguished from all other Garruline eggs by their intense gloss and very smooth fine surface.

One hundred eggs average 26.0×19.4 mm.: maxima 28.7×19.0 and 27.7×20.75 mm.; minima 22.6×18.8 and 24.5×16.5 mm.

(127) *Dryonastes galbanus* (Godw.-Aust.).

THE YELLOW-THROATED LAUGHING-THRUSH.

Dryonastes galbanus, Fauna B. I., Birds, 2nd ed. vol. i, p. 145.

The Yellow-throated Laughing-Thrush is found breeding only in the Chin Hills and Manipur, extending from that State into the Jiri and Jennam Valleys in North Cachar, where, however, it is very rare.

The only nest taken by myself was in the Jiri Valley on the 18th June, 1900, at an elevation of about 2,800 feet. This nest was built in a high bush on the outskirts of dense evergreen forest. The nest was a deep cup, measuring nearly 8 inches wide by 4 inches deep exteriorly. It was composed of bamboo-leaves, creepers, small fine twigs and grass, well lined with roots. It contained three eggs.

In the Chin Hills it is very common and Hopwood and Mackenzie found numerous nests, the great majority containing eggs in May, whilst a few birds bred as early as the middle of April and a few others into early June. The birds seem to be most abundant in summer between 5,000 and 6,000 feet but breed both higher and lower than this.

Mackenzie (Journ. Bombay Nat. Hist. Soc. vol. xxv, p. 76) thus describes the nest and eggs:—"The nest is generally built in the fork of a low bush or shrub, 2' to 10' high in fairly open jungle, and is not difficult to see. Outside it is roughly made of grass-stems, with the ends left sticking out untidily in all directions, and is lined with yellow grass-seed stems; in shape it is a large flattish cup, and there are often a few moss-roots and small twigs mixed with the main structure of the nest (but not with the lining). The general effect is brown outside, lined yellow, as opposed to *I. cineracea*, which is browner outside, lined black."

Hopwood and Cook, who also took many nests, give similar descriptions of them, though both say that they often found leaves, twigs and other materials in the body of the nest; at the same time the bright yellow lining seems to be always a distinguishing feature.

The eggs number two to four, the latter only exceptionally. They are nearly always white but occasionally very pale blue. Mackenzie says of blue eggs:—"None of the eggs actually taken by either of us had the slightest trace of blue. Mr. Stuart Baker has a blue clutch, and several nests of *D. galbanus* containing blue eggs were brought in to me in 1915, but I never got the bird off a blue clutch." As, however, there is no other bird which breeds at 5,000 feet elevation which lays a glossy egg of this type, I do not think there can have been any faking of the eggs. A pair of eggs sent me by Harington are blue, like mine. The eggs of this Laughing-Thrush are exactly like those of *Dryonastes sannio*, except that they are less often tinged with blue.

Eighty eggs average 25.8×18.6 mm.: maxima 28.0×19.7 and 27.0×20.1 mm.; minima 23.5×18.7 and 24.5×16.5 mm.

Garrulax leucolophus.

THE WHITE-HEADED LAUGHING-THRUSH.

(128) Garrulax leucolophus leucolophus (Hardw.).

THE WESTERN HIMALAYAN WHITE-CRESTED LAUGHING-THRUSH.

Garrulax leucolophus leucolophus, Fauna B. I., Birds, 2nd ed. vol. i, p. 146 (part.).

As now restricted this race of White-headed Laughing-Thrush breeds from the Simla and Garhwal Hills, through Nepal into Sikkim.

Hodgson found it breeding in Nepal from the foot-hills, up to 5,000 and 6,000 feet, from April to June, making its nest in small trees. The nest he describes as a rude cup-shaped nest of dry bamboo-leaves, creepers, scales of the turmeric plant etc. and lined with fine roots. Jerdon had the nest brought to him at Darjiling on several occasions, this being "a large mass of roots, moss and grass." One such was a broad shallow saucer, composed of dead

bamboo-leaves bound together with creepers and lined with coarse roots.

Gammie also found it in the Darjiling district but never above 3,500 feet. He sent many nests to Hume, who described them with others :—"They are all very similar, large, very shallow cups, from 6 to 8 inches in external diameter and from 2·5 to 3·5 in height. Exteriorly all are composed of coarse grass, of bamboo-spathes, with occasionally a few dead leaves intermingled, loosely wound round with creepers or pliant twigs, while interiorly they are composed and lined with black, only moderately fine roots or pliant flower-stems of some flowering tree, or both. Sometimes the exterior coating of grass is not very coarse ; at other times bamboo-spathes exclusively are used, and the nest seems to be completely packed up in these."

Whymper found this bird breeding at Naini Tal between 4,000 and 5,000 feet, making their nests in small trees. As a rule, however, as Gammie says, "the nests are generally placed in shrubs, within reach of the hand, among low, dense jungle." In Sikkim and Nepal they breed in April, May and June, most usually in the two former months, but in Naini Tal Whymper took their eggs as late as the 18th July.

The normal number of eggs in a full clutch is four, but they lay up to six and sometimes three only. The eggs are unlike any other *Garrulax* eggs. They are a pure china white, very hard, very glossy and yet with innumerable tiny pits scattered over their whole surface, whilst in shape they are very broad ovals, sometimes almost spheroidal.

Thirty eggs average $29\cdot2 \times 23\cdot5$ mm. : maxima $34\cdot3 \times 25\cdot3$ mm. ; minima $26\cdot1 \times 19\cdot7$ mm.

(128 a) ***Garrulax leucolophus hardwickii*** Ticehurst.

THE EASTERN HIMALAYAN WHITE-CRESTED LAUGHING-THRUSH.

Garrulax leucolophus leucolophus, Fauna B. I., Birds, 2nd ed. vol i, p. 146 (part.).

Garrulax leucolophus hardwickii, ibid. vol. viii, p. 599.

The Eastern form of White-headed Laughing-Thrush breeds throughout the hills of South Assam, Manipur, the Northern Chin and Kachin Hills and the hills and Yomas of Arrakan and, also, Yunnan. In Assam this Laughing-Thrush is very common indeed and I have seen an immense number of their nests and eggs. They breed freely everywhere between 1,000 and 6,000 feet and often both lower and higher than this, but they are, perhaps, most numerous between 1,500 and 2,500 feet. Here their favourite cover is the most dense secondary growth such as one finds in tracts once cultivated but abandoned for three or four years. In the tangle of bush, small trees, bracken, canes and brambles they are thoroughly

at home ; at the same time they often breed in deep virgin forest and, less often, in open bamboo-jungle.

The nest is exactly like that of the preceding bird, and I can add nothing to Hume's description. They almost invariably select sites low down for their nests, often only a few inches from the ground and but seldom 20 feet from it.

They are most sociable birds, and even in the breeding season collect in small parties and go through their musical dances, each exhorting the others, in a loud and cackling voice, to do their best, all the time fluttering about, playing "follow-my-leader" or dancing and posturing on the ground or the low bushes. On one occasion I was watching a party of these birds performing when a loud cackle above my head attracted my attention and, looking up, I saw a Laughing-Thrush sitting on her nest, head well over the side and quivering with excitement, evidently longing to join the gay party down below.

They breed throughout April, May and June, but I have also taken eggs as early as March and as late as August and I think many birds breed twice. In the Chin Hills Mackenzie took nests with eggs in May. They lay four to six eggs which, as already noted and described in regard to the eggs of the previous race, are unlike those of any other *Garrulax*.

Two hundred eggs average 28.1×22.8 mm. : maxima 30.0×23.4 and 28.7×24.1 mm. ; minima 25.0×21.0 mm.

The period of incubation is probably fourteen days. A clutch of four, of which the first egg was laid on the 15th May, had the first chick hatched on the 1st June.

Both sexes take part in the incubation, but the nest is left with eggs exposed during the heat of the day for hours at a time, though in wet weather the birds sit very close all day.

(129) *Garrulax leucolophus belangeri* Lesson.

THE BURMESE WHITE-CRESTED LAUGHING-THRUSH.

Garrulax leucolophus belangeri, Fauna B. I., Birds, 2nd ed. vol. i, p. 148.

This is the race breeding in the Southern Chin and Kachin Hills, Yunnan, North and South Shan States, to Pegu and Tenasserim.

Harington took a number of nests which he ascribed to this form in Myingyan and others in the Shan States, though, perhaps, in none of these places are the birds typical *belangeri*. In Tenasserim both Hopwood and Mackenzie got the quite typical bird breeding and took a few nests.

In Myingyan and the Shan States Harington found them laying from the first week in March up to the middle of April, whilst in Tenasserim they bred in these two months and also in May. The nests are said to be much the same as those of the two preceding races, but Hopwood mentions one nest made entirely of bamboo-twigs, with the exception of a root-lining, and Mackenzie describes

another made entirely of twigs. In one of his nests, taken on the 27th of March, he found young fully fledged and at the same time saw other fully fledged young flying about, so that in Tenasserim some eggs must be laid in February.

Bingham found them breeding in Tenasserim in May and gives a graphic description of an incident exactly similar to that I have already recorded. Whilst he was busy watching a party of dancers, "during one of the pauses of the applause, and while the dancers were busy twining in and out, a single, rather squeaky 'bravo' came from a bamboo bush right opposite me. Looking up, I was astonished to see a nest in a fork of a bamboo, and on the nest a *Garrulax*."

Thirty-six eggs average 28.3×22.8 mm. : maxima 31.5×22.5 and 29.5×23.7 mm. ; minima 25.5×22.0 and 27.5×21.25 mm.

(130) ***Garrulax leucolophus diardi* Lesson.**

THE SIAMESE WHITE-CRESTED LAUGHING-THRUSH.

Garrulax leucolophus diardi, Fauna B. I., Birds, 2nd ed. vol. i, p. 148.

The Siamese subspecies of White-crested Laughing-Thrush is resident and breeds from South Yunnan into Siam, Cambodia, Annam and Cochin China, extending into Eastern peninsular Siam and Tenasserim and the Malay States.

The only nests and eggs I have seen of this bird are a series very kindly collected for me by Mr. W. A. T. Kellow in "some hills about 20 miles East of Perak."

The nests were taken in March, April and May, the first containing three eggs taken on the 16th March and three other nests each containing four. The nests are exactly like those of the races already described, as are the eggs.

Twelve eggs average 27.4×22.4 mm. : maxima 30.0×23.1 and 27.3×24.0 mm. ; minima 26.0×22.0 and 27.5×21.8 mm.

(131) ***Garrulax delesserti* (Jerdon).**

THE WYNAAD LAUGHING-THRUSH.

Garrulax delesserti, Fauna B. I., Birds, 2nd ed. vol. i, p. 149.

This Laughing-Thrush is confined to the hills of South-West India from the Wynaad to South Travancore.

The first authentic nest and egg of this species were taken by Davidson in Kanara in the latter part of May. "It was in a low-bush jungle, and was like an ordinary small Bulbul's nest, composed of rough creepers and roots, with a couple of skeleton leaves in the foundation. It contained a single partially incubated egg. This was pure white and glossy, and a very broad oval."

The only other collector who has taken the nests and eggs of this bird is Mr. J. Stewart. Together with a fine series of their eggs he

has supplied me with the following interesting notes :—"All my eggs have been taken in the Ventura Valley, Travancore, where it is fairly common up to about 4,000 ft. though it prefers an elevation of about 2,000 ft. The birds breed principally during the South-West Monsoon, when the rainfall is about 150 inches, but they have a long breeding season and I have taken eggs from the 7th of April to the 28th of August. When disturbed or alarmed they are noisy birds, chattering and cackling one after another or all together. At other times, at all events during breeding times, they are not noisy and they slip quietly away off their nests on the advent of any intruders and do not give away the site by calling. The nest is not hard to find, however, for no attempt is made at concealment and it is often very conspicuous, especially when, as is sometimes the case, it is placed in almost bare saplings 5 or 6 feet from the ground. More often it is built in bushes at any height from two to six feet, but, whether in sapling or in bush, the surroundings are always damp thick forest.

"They lay three eggs normally but sometimes four, and I have taken two nests, one containing six and the other seven eggs, which I believe were, in both instances, the product of two birds.

"The nests are very rough, untidy structures, made for the most part of fine twigs lined with roots. Mixed with the twigs there may be grass, roots, leaves and various kinds of fibre, but in all the twigs seem to preponderate."

The eggs are like no other Laughing-Thrushes' eggs. They are pure white and round, like the eggs of the White-crested birds, but the texture is utterly unlike, being more transparent, smooth, hard and very glossy, not unlike that of many Woodpeckers. There are no pits in the surface and the white is not nearly so dead a china white.

The average measurements of fifty eggs is 27.5×21.3 mm. : maxima 29.1×21.3 and 28.4×22.0 mm. ; minima 26.0×20.8 and 26.5×20.5 mm.

Garrulax pectoralis

THE BLACK-GORGETED LAUGHING-THRUSH.

(132) *Garrulax pectoralis pectoralis* (Gould).

THE INDIAN BLACK-GORGETED LAUGHING-THRUSH.

Garrulax pectoralis pectoralis, Fauna B. I., Birds, 2nd ed. vol i, p. 150.

The range of this Black-gorgeted Laughing-Thrush extends from Nepal in the West to Eastern Assam, North and South of the Brahmapootra, into Northern Burma, the Shan States and Yunnan.

It is a bird of low levels and is most common in Summer from about 1,000 to 2,000 feet, but breeds freely down to the foot-hills and sometimes even in the adjoining plains, as in Margherita.

On the other hand it often breeds at still higher elevations. It is common at Cherrapoonji, 4,000 feet, almost equally so at Maymyio in the Bhamo Hills, nearly up to 5,000 feet, where Mackenzie has taken it, and in the Upper Chindwin, at the same elevation, at which Hopwood has found its nest.

Mandelli also took their nests in Sikkim in early July but does not record the altitude. Primrose and Stevens took others in Sikkim up to about 4,000 feet, but Shaw records it up to 5,600 feet at Mangpu.

It breeds principally from April to June but a few birds have nests and eggs in late March, whilst others breed in July and even August, though these nests are probably always second broods.

The nest is a broad, rather shallow saucer, measuring outwardly between 7 and 8 inches across and about $2\frac{1}{2}$ to 4 inches in depth, with inner measurements about 2 inches less each way. They are generally untidily and rather loosely put together, the major part of the materials consisting of bamboo-leaves, in addition to which other dead leaves, roots, scraps of moss, bracken etc. are used, the whole being bound round by weed-stems and tendrils. These are more or less interlaced and sometimes worked under, as well as over, the bamboo-leaves, but they never seem to be drawn tight. In a few nests long roots take the place of tendrils. The lining is of roots, more or less mixed with fine, straight tendrils, grass-stems and fern-stems. They are built, indifferently, in bushes, high or low, densely foliated or almost bare, or in small trees. Sometimes when in bushes or brambles they may be only a couple of feet or less from the ground, whilst in saplings they may be as much as 20 feet from it.

A nest taken by Wickham in Northern Burma, and from which he saw the bird leave, was placed on the ground in among grass.

They breed much in rather deep forest but are very partial to secondary growth in deserted cultivation and may also often be found in bamboo-jungle, in which they use bamboo-clumps in place of bushes in which to make their nests.

The eggs number three to five, four being the number most often found, whilst I once found as many as seven, and Harington, also, once took a seven-clutch at Maymyio.

The eggs are blue of a fairly deep shade and vary very little in depth of colour. In shape they are rather long true ovals, sometimes rather pointed at the smaller end. The texture is smooth, but there is only a slight gloss in most eggs and none in some of them.

One hundred eggs average 31.4×22.7 mm. : maxima 33.8×22.7 and 29.2×24.1 mm. ; minima 28.7×21.6 and 30.2×20.9 mm.

(133) *Garrulax pectoralis meridionalis* Rob. & Kloss.

THE BURMESE BLACK-GORGETED LAUGHING-THRUSH.

Garrulax pectoralis semitorquata, Fauna B. I., Birds, 2nd ed. vol. i, p. 151.
Garrulax pectoralis meridionalis, ibid. vol. viii, p. 599.

The Burmese race is found throughout the hills of Southern Burma, from the Southern Shan States to Tenasserim and in South-West Siam.

Oates obtained the nest of this Laughing-Thrush in the Pegu Hills on the 27th of April. "The nest was placed in a bamboo clump about 7 feet from the ground, made outwardly of dead bamboo leaves and coarse roots, lined with finer roots and a few feathers; inside diameter 6 inches. depth 2 inches."

Cook obtained nests and eggs in Ataran during May and Macdonald found them breeding on the Taak plateau in April.

The nests do not seem to differ in any way from those of the preceding bird and feathers in the lining must be quite abnormal. Sites selected seem also much the same as those chosen by the Indian birds, though the Burmese may keep more often to bamboo-jungle than to deep evergreen forest.

Fifteen eggs (not *fifty*, as misprinted in the 'Avifauna') average 30.1×22.0 mm. : maxima 32.0×23.2 and 31.5×23.4 mm. ; minima 27.1×22.0 and 28.9×21.9 mm.

They are, of course, the usual blue in colour and, in shape and texture, like those of the last bird. Three or four seems to be the usual clutch.

Garrulax moniligera.

THE NECKLACED LAUGHING-THRUSH.

(134) *Garrulax moniligera moniligera* Hodgs.

THE INDIAN NECKLACED LAUGHING-THRUSH.

Garrulax moniliger moniliger, Fauna B. I., Birds, 2nd ed. vol i, p. 151.

The Indian Necklaced Laughing-Thrush breeds throughout much the same area as the Indian Black-gorgeted bird.

This bird only differs in its breeding habits from the Black-gorgeted Laughing-Thrush in not ascending to such high elevations. Hume speaks of nests "below Darjiling," but they must have been much below that place. Gammie found the nest in Sikkim at 2,000 feet and Stevens gives 3,000 as the limit to which they ascend in that country. In Assam, in the hot low hills South of the Brahmapootra, they are certainly sometimes found up to 4,000 feet, but their usual breeding elevation is between the foot-hills and about 2,500 feet. They nest actually in the Plains in Lakhimpur, where Coltart took several nests in the foot-hills round Margherita.

Their choice of nesting-sites is much the same as that of the Black-gorgeted Laughing-Thrush but they frequent evergreen forest less and secondary growth, bamboo-jungle and scrub more than that bird does. They are also more confiding birds and are commonly seen near villages in the scrub which generally grows all round them. They breed freely, also, in such places and I have seen many nests not 50 yards from the nearest inhabited building.

Their nests are placed in situations similar to those selected by their bigger congeners and are exactly similar in construction and no smaller.

The eggs, also, are just the same and, though they average a good deal smaller, the extremes well overlap. In depth of colour they vary more and very pale eggs are not exceptional in this species.

Four or five eggs is the normal clutch, and 100 average 28.4×21.3 mm.: maxima 30.8×21.0 and 27.9×23.5 mm.; minima 27.0×21.6 and 27.2×19.8 mm.

Most birds breed in April and early May, but I have taken eggs from the 15th March to the 15th July.

(135) *Garrulax moniligera fuscata* Stuart Baker.

THE BURMESE NECKLACED LAUGHING-THRUSH.

Garrulax moniliger fuscata Fauna B. I., Birds, 2nd ed. vol. i, p. 15.

This race is found from Central Burma to the South of Tenasserim and South-West Siam.

Oates found the Burmese Necklaced Laughing-Thrush breeding in Pegu in April and more often in July. The nest he describes as being made of dead leaves and small branches, lined with fine twigs, in shape a massive cup, placed in small saplings within reach of the hand. Bingham found them breeding in the same district of Lower Burma in March and April, whilst Hopwood and Mackenzie took nests in April, May and June. They all agree that the nests are just like those of the preceding bird, bamboo-leaves forming the principal material used in most nests.

Macdonald took one nest at Pakokku in May.

The eggs are not distinguishable in any way from those of the Indian bird. Twenty-four eggs average 28.1×21.4 mm.: maxima 30.3×21.9 and 29.3×22.4 mm.; minima 26.1×21.8 and 28.1×20.1 mm.

As with so many species which divide in their extremes into easily separated geographical races, there is a considerable area of intermediate country in which the birds also are more or less intermediate. The eggs of all such are left out of consideration in this volume, though some were admitted by me in 1922.

Garrulax gularis.**THE YELLOW-BREASTED LAUGHING-THRUSH.****(136) Garrulax gularis gularis (McClell.).****THE CACHAR YELLOW-BREASTED LAUGHING-THRUSH.**

Garrulax gularis, Fauna B. I., Birds, 2nd ed. vol. i, p. 152.

This bird is restricted to Assam, South and East of the Brahmaputra, from Cachar to the Daffa Hills and East Lakhimpur. It occurs in Manipur and Mackenzie thought he saw it in the Chin Hills.

I found this bird breeding freely in North Cachar between 4,000 and 6,000 feet, rarely a little lower. The nests are like those of *Garrulax monaligera*, but they are more bulky and better finished off. In most nests the greater portion of the materials consist of bamboo-leaves, other articles being used such as dead leaves, moss- and fern-roots, sometimes coarse bamboo-roots and stems of weeds and, almost invariably, a great number of tendrils, in some few cases these forming the bulk of the nest. The lining consists of coarse moss- and fern-roots mixed with leaf-stems and a few stalks of weeds. The largest nest I ever took was one which was found by a jungle path in a mass of creepers, half resting on or against a dead stump. This nest was fully $7\frac{1}{2}$ inches across, whilst the inner wall, i. e., that against the bank, was about 7 inches deep and the outer wall about 5 inches.

The situations selected for breeding purposes differ greatly. I have taken nests from practically off the ground and others from saplings and small trees possibly up to 25 feet. Most nests, however, will be found in bushes somewhat under 4 feet.

The birds breed both in deep forest or, less often, in comparatively open forest, or in bamboo- and scrub-jungle. The favourite position is in evergreen forest beside some stream.

The eggs may be either pure white or pale blue, much paler than the eggs of the Necklaced Laughing-Thrushes. Occasionally the eggs are almost white, with just the faintest tinge of blue, but such eggs are exceptional. The texture is smooth and fine but not glossy, and they have a slight sheen which separates them from other similar coloured eggs. In shape they are rather long ovals, sometimes pointed at the smaller end.

Two or three eggs form the usual clutch, generally three.

One hundred eggs average 29.2×20.5 mm. : maxima 31.0×19.8 and 29.0×21.7 mm. ; minima 25.5×19.6 and 27.8×19.2 mm.

The earliest birds commence to breed at the end of April, while the latest lay in the middle of July, but the very great majority of eggs are deposited in May.

They are not demonstrative birds at any season and, when breeding, are very furtive in their movements. Although they sit close and do not move off their nests until the last moment, it is difficult to get a glimpse of them as they slip off. They return very quickly, however, and are easy to trap on their nests. The Nagas of the Patkoi range above Margherita often brought in the nests and eggs with the parents, which they had secured in this manner. Both sexes take part in incubation, so both were captured.

Garrulax albogularis.

THE WHITE-THROATED LAUGHING-THRUSH.

(138) Garrulax albogularis whistleri Stuart Baker.

THE WESTERN WHITE-THROATED LAUGHING-THRUSH.

Garrulax albogularis whistleri, Fauna B. I., Birds, 2nd ed. vol. i, p. 154.

The Western race of White-throated Laughing-Thrush breeds from Afghanistan to Nepal all along the outer Himalayas from 4,000 to 8,000 feet. It breeds in Jammu but, according to Ward, is a rare bird in Kashmir, and he merely says that it has been recorded from the Jhelum Valley. Whymper found it breeding in great numbers in Naini Tal about 5,000 feet; Jones records them as fairly common at 5,000 to 7,000 feet in the Simla States. Rattray omits them from the list of birds he found breeding round Murree but I have eggs taken by him at Murree after his paper on that place was published. Marshall and Cock also took their nests there, and Hutton reports them as very common round Mussoorie.

Hume gives an excellent summary of their nests, which I quote:—
 “The nest varies in shape from a moderately deep cup to a broad shallow saucer, and from 5 to 7 or even 8 inches in external diameter, and from less than 2 to more than 4 inches in depth internally. Coarse grass, flags, creepers, dead leaves, moss- and grass-roots all at times enter more or less largely into the composition of the nest, which, though sometimes wholly unlined, is often neatly cushioned with red and black fern and moss-roots. The nests are placed in small bushes, shrubs or trees at heights of from 3 to 10 feet, sometimes in forks, but more often, I think, in low horizontal branches, between two or three upright shoots.”

Hutton and other observers often found tendrils to be largely used in the construction of the nest, whilst a nest taken by Jones in the Kote State at 7,000 feet was built almost entirely of grass and pine-needles, lined with finer grass and rootlets. This nest was placed in a bramble climbing up a Blue Pine, about 12 feet from the ground. Another nest made of grass was found by the same observer, built between horizontal twigs of an Oak (*Quercus dilatata*).

In Naini Tal nearly all the nests taken by Whymper were made of black rootlets, the coarsest outside, the finer as lining.

Hume summarizes their breeding-season as "from the commencement of April to the end of June." May, however, seems to be the month in which most eggs are laid, though Whymper found many nests with fresh eggs in July.

The normal full clutch of eggs is three; four are quite exceptional and two are sometimes incubated.

They are very beautiful eggs; an intense deep blue, with no tint of green in most eggs, deeper in colour than those of any other known Indian bird, besides having a brilliant gloss. The texture is stout and fine and the shape a long oval, often pointed at the smaller end.

Sixty eggs average 29.0×21.1 mm.: maxima 32.0×21.5 and 28.0×22.0 mm.; minima 24.2×20.0 mm.

Ianthocincla ocellata.

THE WHITE-SPOTTED LAUGHING-THRUSH.

(140) *Ianthocincla ocellata ocellata* (Vigors).

THE SIKKIM WHITE-SPOTTED LAUGHING-THRUSH.

Ianthocincla ocellata ocellata, Fauna B. I., Birds, 2nd ed. vol i, p. 155.

This Laughing-Thrush is found in Summer between 8,000 and 10,000 feet in Sikkim and Nepal. It also occurs in Bhutan, as amongst some skins brought down by one of the local bigwigs of Bhutan to Gowhati in January 1886 were two skins of this bird.

Very little is known about its nidification. Hume had a nest, two eggs and a bird sent him from Darjiling. "The nest was taken in May in one of the low, warm valleys leading to the Great Runjeet and is said to have been placed close to the ground in a thick clump of fern and grass. The nest is chiefly composed of these, intermingled with moss and roots, and is a large loose structure some 7 inches across."

The eggs are "long cylindrical ovals, very obtuse even at the smaller end, with a very delicate pale blue ground and little or no gloss. One egg is spotless, the other has a few chocolate-brown specks or spots towards the large end. They measure 1.18×0.86 and 1.25×0.85 (=nearly 30.0×21.8 and 32.7×21.5 mm.).

Osmaston found one nest of this bird near Darjiling at about 8,500 feet. "Nest of moss, dry grass and bamboo leaves built in a small tree in scrub forest about 6' from the ground."

It contained one egg, a spotless blue, much the same colour as the eggs of the Necklaced Laughing-Thrush, perhaps a little darker and with a finer, smoother and more satiny surface. It is quite spotless and is in shape a long, obtuse oval measuring 30.9×21.2 mm.

It is much darker than Hume's two eggs, but both clutches are beyond doubt and probably represent the two extremes of coloration.

Ianthocincla cineracea.

THE ASHY LAUGHING-THRUSH.

(141) **Ianthocincla cineracea cineracea** (Godw.-Aust.).

THE ASSAM ASHY LAUGHING-THRUSH.

Ianthocincla cineracea cineracea, Fauna B. I., Birds, 2nd ed. vol i, p. 156.

This bird is common in the hill ranges of Assam South of the Brahmapootra, extending South through Manipur to the Chin Hills, but not East to the Lakhimpur district. It breeds from 5,000 feet upwards but generally over 6,000 feet. In North Cachar I saw a few birds on the high peaks adjoining the Naga Hills but I never succeeded in finding their nests, and they probably retired to still higher hills for this purpose.

In 1909 Col. Tytler found them breeding in some numbers near Kohima between 7,000 and 8,000 feet and took several nests. These he describes in a letter to me as "rather deep, compact cups of moss, leaves, roots and grass, bound round with weed-stems and tendrils and lined with roots. The outer measurements are roughly 6"-8" \times 2 $\frac{3}{4}$ "-3 $\frac{1}{2}$ " and the inner cup measures about 4" \times 2". The eggs are equally often two or three, never four. I have taken most nests from damp forest, where they are built in thick bushes, always placed quite close to the ground, often within a couple of feet. The bird sits very close and is easy to identify."

In the Chin Hills it is one of the most common breeding birds down as low as 4,500 or 4,000 feet. Mackenzie, Hopwood and Macdonald saw many nests and eggs and the first-named gives the following account of its breeding :—

"This is the Common Laughing-Thrush of the district, being exceedingly abundant between 4,000 and 6,000 ft., and breeding in the raspberry vines and thickets near the villages. We obtained a large number of eggs and nests at the end of April and beginning of May. The laying season seems to extend for about a month, as we got both hard-set and fresh eggs almost every day.

"The nest is a small and flimsy copy of that of *G. pectoralis*, and is generally fairly conspicuous; the bird obliges by sitting on it until you almost touch her, thereby rendering identification easy. The nests were generally placed in low thickish bushes, 3' to 6' high, and were made of grass stems and fine twigs, not very tidily put together, as all the ends stick out. The lining is of fine black and brown stems and a few moss roots. In shape it is a hollow saucer, about 4 $\frac{1}{2}$ " across and 2" deep externally, and 3" \times 1 $\frac{1}{2}$ " internally."

The eggs are a soft, fairly deep, unspotted blue, with a very beautiful silky texture. In most eggs there is a faint greenish tinge and in one clutch, taken by Mackenzie, a distinct yellow-green tint, evidently abnormal and due to some defect in the bird laying them.

One hundred and fifty eggs average 25.3 \times 18.6 mm.: maxima 29.25 \times 19.2 and 27.5 \times 20.0 mm.; minima 23.0 \times 18.0 and 23.2 \times 17.3 mm.

Ianthocincla rufogularis.**THE RUFOUS-CHINNED LAUGHING-THRUSH.****(143) Ianthocincla rufogularis rufogularis Gould.****THE SIKKIM RUFOUS-CHINNED LAUGHING-THRUSH.**

Ianthocincla rufogularis rufogularis, Fauna B. I. Birds, 2nd ed. vol i, p. 158.

This Laughing-Thrush breeds in the Outer Himalayas from Nepal to the Miri Hills, between 3,000 and 5,000 feet; Stevens says down to 2,500 feet in Sikkim, whilst it has been found as high as 6,000 near Darjiling.

Hume had numerous nests sent to him from Sikkim. They "are all of the same type, all moderately deep cups, composed entirely of creeper tendrils, the cavity only being lined with fine black roots. They appear from the specimens before me to be quite *sui generis* and unlike those of any of its congeners. No grass, no dead leaves and no moss seem to be employed; nothing but the tendrils of some creeper. The nests appear to be always placed at the fork, where three, four or more shoots diverge, and to be generally more or less like inverted cones, measuring, say, 4 or 5 inches in height and about the same in breadth at the top, while the cavities are about 3 inches in diameter and 1.5 to 2.0 in depth. The nests appear to have been found at varying heights from the ground from 5 to 15 feet, and at elevations of from 3,000 to 5,000 feet. They appear to have contained three fresh or more or less incubated eggs.

"The eggs were found in Sikkim on different dates between 25th May and 8th September."

The eggs are pure white with a decided but not high gloss and are rather thin and fragile for their size. In shape they are long but not pointed ovals, and fifteen average 26.2×19.4 mm.: maxima 28.7×22.1 and 27.9×22.5 mm.; minima 23.4×20.6 and 26.4×19.0 mm.

(144) Ianthocincla rufogularis assamensis (Hartert).**THE ASSAM RUFOUS-CHINNED LAUGHING-THRUSH.**

Ianthocincla rufogularis assamensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 150.

The range of this race is from West to East of the Assam Hills South of the Brahmapootra, East to the Chin Hills. I found this bird breeding in fair numbers throughout the Khasia and North Cachar Hills between 3,000 and 6,000 feet. Most nests were placed below 4,500 feet in these hills but in the adjoining Naga Hills they are certainly resident breeding birds at the higher elevations and probably up to about 7,000 feet above Henema.

The most usual site selected for the nest is one in deep forest,

generally of lofty trees with plenty of green undergrowth ; at the same time they like to get near to some natural opening, such as the banks of a stream, small or big, or an open glade in which both trees and undergrowth thin out and let the sun through. Close to such an opening they choose some bush or tree, or a clump of raspberry or other vines in which to build their nest, at any height between 2 and 20 feet. The nest is like that of its cousin, already described, but the materials used are much more diverse, though the tendrils of a little creeping *Convolvulus* nearly always form an important part of them. Most nests are rather deep cups, about 6 inches in diameter and about 4 to 6 inches in depth, with an egg-cavity about 2 inches less each way. They are composed of soft pliant twigs, roots, leaves, many scraps of bracken and then the stiffening and binding of the fabric with the tendrils. The lining is of fine roots.

The number of eggs laid is generally three only but sometimes there are four, and occasionally two only are laid. They are the same pure glossy white as those of the preceding bird, and forty of them average 26.5×18.9 mm. : maxima 29.2×19.7 and 26.3×19.9 mm. ; minima 24.3×18.0 mm.

They are normally rather late breeders for this species and I have taken more eggs in May than in any other month, but they breed regularly from late April to the end of July.

These birds can nearly always be watched and identified on the nest with ease and I have often had them sit and watch me from a few paces with wide-open unblinking eyes and then, as one steps forward, they tumble noiselessly off the nest and vanish, with a low chuckle, into the undergrowth.

Both sexes take part in incubation.

(145) *Ianthocincla rufogularis occidentalis* (Hartert).

THE KUMAN * RUFOUS-CHINNED LAUGHING-THRUSH.

Ianthocincla rufogularis occidentalis, Fauna B. I., Birds, 2nd ed. vol. i., p. 159.

This subspecies is common throughout the Outer Himalayas from Murree, where it is rare, to Nepal. It breeds commonly in Garhwal, Dehra Dun and the Kuman between 1,500 and 5,000 feet, and in the Simla States seems to be equally common up to 6,000 feet or rather higher, though Jones does not include it in his 'Birds of Simla.' Hutton, it should be noted, found it breeding in Simla at 6,500 feet.

The nest appears to be invariably built in bushes or small trees in dense forest and the birds seem to prefer those which stand in ravines or in broken ground. Occasionally they frequent secondary

* I have altered the trivial name from Kashmir, as that is really a misnomer. It is rare in Kashmir but very common in the Kuman.

growth or thick scrub and Whympers found one nest in the latter at Naini Tal, near the Bhim Tal lake, at about 5,000 feet. Betham and Osmaston took several nests at Dehra Dun, all in deep forest between 2,000 and 3,000 feet.

They breed from early April, Osmaston taking eggs on the 10th of that month, to the end of July.

The nest is a rather flimsy ill-made cup of various materials, such as grass-bents, rootlets, small pliant twigs and fibre, less often with a few bamboo-spathes or dead leaves intermixed. Some nests are made entirely of one or two of these materials to the exclusion of the rest; sometimes all of them are used. The lining is always of fine roots or fine root-like fibre. The site selected may be in a thick bush only a foot or two from the ground, in a shrub at 5 or 6 feet, or in a small sapling between 8 and 16 feet. In the latter case it is built in a fork, upright as a rule, though one sent to Hume was in a horizontal one.

The eggs number two or three, very often the former, and are, of course, indistinguishable from those of the other races. Twenty eggs average 26.1×19.4 mm. \therefore maxima 28.5×21.0 mm.; minima 28.4×18.0 and 26.1×17.8 mm.

Ianthocincla austeni.

THE BROWN-CAPPED LAUGHING-THRUSH.

(146) *Ianthocincla austeni austeni* (Godw.-Aust.).

THE CACHAR BROWN-CAPPED LAUGHING-THRUSH.

Ianthocincla austeni austeni, Fauna B. I., Birds, 2nd ed. vol. i, p. 160.

This Laughing-Thrush is only found in the higher ranges of hills South of the Brahmapootra, generally above 6,000 feet, less often down to 5,000, and, very rarely, down to 4,000. It breeds on the highest ridges of the Khasia Hills and thence more commonly into the Naga Hills up to 9,000 feet. In North Cachar it is rare and I never met with it until I visited the high ranges towards Henema in the Naga Hills. There, at about 5,000 to 7,000 feet, I saw pairs in dense forest but failed to find their nests.

In the Khasia Hills they are restricted to the forests composed of Oak and Rhododendron on the highest peaks above Shillong about 6,000 feet, or to the very tops of the highest hills near Cherrapunji, which range over 4,000 feet. Everywhere, however, it is rare in this district, though common in the adjoining Naga Hills. I never found it nesting in Pine woods, except in broad, open ravines or along the banks of streams where the Pines were replaced by other trees.

The nests range from rather flimsy, carelessly put together cups of tendrils, roots and leaves to compact, well-built cups of

moss, leaves, bamboo-spathes, grass etc. Tendrils form a part of almost every nest and one or two are built entirely of this material with merely a lining of roots and bents. In many nests the main inner portion consists of bamboo-leaves held together with a few weed-stems or long roots. Smaller and finer roots always form the lining, though these may be mixed with a few bents. Generally the roots are all fine red roots of lichen and moss but sometimes black moss-roots are used.

I have found some nests within a foot or two of the ground in tangles of raspberry vines, bracken etc. Many were placed in high bushes up to 6 feet or rather more, whilst a few were built in small Oak or Rhododendrons up to 10 feet from the ground.

The breeding season starts in the middle of April and I have taken incubated eggs on the 19th of that month. They lay all through May and in smaller numbers in June, though I have taken eggs as late as the 1st of August.

The full clutch is generally three, but sometimes four eggs are laid and, occasionally, only two are incubated.

They are white eggs, resembling those of the Rufous-chinned group in shape and texture, though I think the surface may be on the whole very slightly closer and more glossy.

Forty-six eggs average 26.3×19.0 mm. : maxima 28.1×19.6 and 27.0×21.0 mm. ; minima 23.1×19.6 and 25.7×18.0 mm.

Trochalopteron erythrocephalum.

THE RED-HEADED LAUGHING-THRUSH.

(148) Trochalopteron erythrocephalum erythrocephalum (Vigors).

THE SIMLA RED-HEADED LAUGHING-THRUSH.

Trochalopteron erythrocephalum erythrocephalum, Fauna B. I., Birds, 2nd ed. vol. i, p. 163.

Hume places the Western limit of this bird's range as the Beas Valley but, as a matter of fact, it is common all along the outer Himalayas from Murree to Nepal, where it breeds at all elevations between 5,000 and 9,500 feet. To the North Ward records it as having been found in Badrawar in Kashmir. It is essentially a bird of the forests. Rattray observed it in "dense forest, generally with much undergrowth and often in broken ground, taking its nest at 6,500 feet above Murree and at 8,000 in similar forest at Mussoorie." Whympers, at Nainital, took nests in "Chenar forests, at about 8,000 ft." Osmaston obtained a fine series of nests and eggs round Deoban (Chakrata) in Oak and Silver Fir forests between 8,500 and 9,000 feet, whilst Dodsworth and Jones took many nests and eggs in the Simla States, between 6,500 and 7,500 feet in "dense forest" or "never far from dense cover."

The nests, like those of most Laughing-Thrushes, are sometimes built low down in bushes, and such a nest was taken by Rattray about 4 feet from the ground. More often, however, they build in small trees between 8 and 20 feet from the ground. The tree may be one with thick foliage, such as a holly bush (Jones) or a "densely leaved rhododendron" (Dodsworth), but they seem to have a preference for Oaks, and the great majority of those obtained by Osmaston were in trees of this genus (*Quercus semicarpifolia* and *Q. dilatata*) at heights between 6 and 8 feet from the ground. Nests sent to Hume were "composed chiefly of dead leaves bound round into a deep cup with delicate fronds of ferns and coarse and fine grass, the cavities being scantily lined with fine grass and moss-roots. It is difficult to convey any idea of the beauty of some of these nests—the deep red-brown of the withered ferns, the black of the grass- and moss-roots, the pale yellow of the broad flaggy grass, and the straw-yellow of some of the finer grass-stems, all blended together into an artistic wreath."

Osmaston found that in addition to the root or rhizomorph lining, the nests he saw at Chakrata nearly always had oak-leaves incorporated with the other material. Jones also found flakes of bark used in the lining, whilst a certain amount of moss was used in the interior of the nest.

June to the middle of July is the principal breeding season. The earliest date I have recorded is the 2nd of May (Rattray) and the latest (Marshall's) 17th of August, near Naini Tal.

The full clutch of eggs is two or three, most often the latter. In colour etc. the eggs of all the races of Red-headed Laughing-Thrushes are alike. The ground is a most beautiful soft blue-green, neither very deep nor very pale in tint and varying but little in depth. The markings consist of bold blotches and streaks of deep red-brown to black. In no eggs are they numerous. In most there are a dozen or so at the larger end, very bold and of some size, whilst elsewhere are scattered a few smaller spots and blotches. In some eggs the markings are reduced to a few bold spots of deep brown or black, while one clutch of three taken by Osmaston has no marks at all. In shape they are rather long ovals, compressed towards the smaller end, yet always obtuse.

One hundred eggs average 28.4×21.4 mm.: maxima 30.8×22.1 mm.; minima 26.1×20.4 and 28.1×20.0 mm.

(149) *Trochalopteron erythrocephalum erythrolæma* Hume.

THE CHIN HILLS RED-HEADED LAUGHING-THRUSH.

Trochalopteron erythrocephalum erythrolæma, Fauna B. I., Birds, 2nd ed. vol. i, p. 164.

This Red-headed Laughing-Thrush is confined to the Chin Hills and extreme East and South Manipur.

Hopwood and Mackenzie took a considerable number of nests of this fine Laughing-Thrush in the North of the Chin Hills between 5,000 and 6,000 feet. Unfortunately their notes are very meagre, and though their series are incorporated in my collection the information given is not very ample. The following is a summary of their notes :—

The birds always breed in thick cover but this may consist either of deep evergreen forest or of secondary growth. The first nest ever taken, one by Hopwood on the 12th of May, 1913, was placed in a low thick bush on the summit of a hill, some 6,000 feet elevation, which had been cleared to make a survey point. After having served its purpose, it was abandoned and a dense bamboo and secondary growth soon covered it, in which the birds built their nest. Some of their other nests were built in similar jungle but most were taken from real virgin forests, some in thick bushes, but many on small trees and saplings at 6 and 10 feet from the ground. All their nests were taken in April and May.

The nests themselves seem to be of two types. Most of those taken by Hopwood were massive cups made almost solely of moss, though with this might be incorporated a few leaves, roots, scraps of grass or other material. The lining was of fine or coarse roots or, seldom, of grass and roots. Mackenzie describes his first nest as "a shallow cup of grass and twigs lined with finer twigs, moss and other roots, fairly loosely put together; . . . they are not unlike those of *Ianthocincla cineracea* but perhaps neater."

The nests placed in bushes were well concealed but, as the birds sat close and only fluttered off them when the intruder was within a few feet of them, they were easy to discover. The nests built in saplings were generally quite conspicuous.

The eggs, of course, are inseparable in colour and texture from those of the preceding bird but, taking them as a series, they are perceptibly longer, narrower eggs, a feature that seems to be constant in a rather large series.

Thirty-three eggs average 29.9×20.5 mm.: maxima 33.0×22.3 mm.; minima 26.3×20.0 and 28.5×18.25 mm.

An usually long, abnormal pair taken by Mackenzie measure 36.0×18.8 mm.

Two eggs constitute a full clutch and three is quite exceptional.

(150) *Trochalopteron erythrocephalum nigrimentum* (Oates).

THE SIKKIM RED-HEADED LAUGHING-THRUSH.

Trochalopteron erythrocephalum nigrimentum, Fauna B. I., Birds, 2nd ed. vol. i, p. 164.

This bird's range is from Eastern Nepal to the Dafia and Miri Hills in Northern Assam. It is very common round Darjiling, where first Gammie took many nests; later W. P. Masson sent me

several nests with eggs and birds and, finally, Osmaston collected a fine series in 1903 and 1904 between 5,700 and 9,000 feet.

Hume, referring to three nests sent to him by Gammie and six by Mandelli, writes as follows :—" They were placed in small trees or dense bushes at heights of from three to eight feet, and contained in some cases two, and in others three, fresh or fully incubated eggs. All (nests) are of precisely the same type, all constructed with the same materials but, owing to the different proportions in which these are used, some of the nests at first sight seem to differ widely from the others. Some also are bigger than others, but all are massive, deep cups, varying from 5.25 to 6.5 inches in diameter, and from 3 to fully 4 in height externally; the cavities vary from 3 to 3.5 in diameter and from 2 to 2.5 in depth. The body of the nest is composed of grass; the cavity is lined first with dry leaves, and then thickly or thinly with dry fibrous roots. Externally the nest is more or less bound together by creepers and stems of herbaceous plants. Sometimes only a few strings of moss and a few sprays of *Selaginella* are to be seen on the outside of the nest; while, on the other hand, in some nests the entire outer surface is completely covered with green moss, so as to conceal completely the rest of the materials of the nest."

Nests taken by Otto Müller in 1886 and by Masson in 1910 exactly fit the above descriptions, as do those taken by Osmaston.

The latter found the birds breeding in open forest but Masson obtained two from real damp virgin forest. Nests with fresh eggs have been taken from the first week in May until the third week in July.

Two seems to be the almost invariable full clutch, for, though both Gammie and Mandelli occasionally found three in a nest, none of my collectors or other observers have ever seen more than two, except for one three taken by Osmaston.

The eggs are typical of the species and 32 average 28.5×20.9 mm. : maxima 32.3×20.0 and 29.0×22.0 mm. ; minima 24.0×18.7 mm.

It will be noticed that these measurements make out the eggs to be much the same as those of the typical race and not prolonged ovals, as in the Chin Hills birds, which seem to stand alone in this respect.

(153) *Trochalopteron erythrocephalum chrysopterum* (Gould).

THE SHILLONG YELLOW-WINGED LAUGHING-THRUSH.

Trochalopteron erythrocephalum chrysopterum, Fauna B. I., Birds, 2nd ed. vol. i, p. 166.

The Yellow-winged Laughing-Thrush is restricted to the Khasia Hills and, even in that district, is very local, being found only between 4,000 and 6,200 feet.

The nests have only been taken by myself and my collectors so far as is recorded, but I understand that Mr. A. J. Currie has also taken them since I left India.

Unlike most other Laughing-Thrushes, this bird keeps almost entirely to Pine forests but, for breeding purposes, it prefers rather open Pine woods through which run ravines, where a certain amount of bush cover and small Oak and other saplings are able to live. It is on these bushes and saplings the Laughing-Thrush builds its nest. The only exceptions to its breeding in Pine woods are two nests, one built in Oak and Rhododendron forest just alongside Pines and the other in evergreen forest just below a belt of Pine woods.

The nest is a broad, rather shallow cup, about 6 to 8 inches across and from $2\frac{1}{2}$ to $3\frac{1}{2}$ inches deep. It is made of bamboo-leaves, dead leaves, grass, twigs and bracken, in most cases mixed externally with much green moss, though this is not always present. It is bound together with long roots, tendrils and stems of weeds, sometimes with two or one only of these three. The lining is always the same, a bed of dry leaves, next the outer materials and then a good lining of fine roots. A striking character of most nests is the general dark colour of the materials used.

They are very conspicuous nests, placed at any height between 2 and 10 feet from the ground but nearly always within reach of the hand.

The birds sit fairly close but leave before one actually approaches the nest within a yard or two, quietly slipping away into the nearest cover, with the low, rolling chuckle common to the genus.

The eggs number three in a full clutch, sometimes two only, and are like those of the other races.

Fifty eggs average 30.6×21.6 mm.: maxima 32.5×22.6 and 31.2×22.8 mm.; minima 28.1×20.2 mm.

I have taken eggs from the 20th of April up to the 3rd of July, but the great majority of eggs are laid in the second half of May.

(154) *Trochalopteron erythrocephalum melanostigma* (Blyth).

THE TENASSERIM RED-HEADED LAUGHING-THRUSH.

Trochalopteron erythrocephalum melanostigma, Fauna B. I., Birds, 2nd ed. vol. i, p 167.

This race of Red-headed Laughing-Thrush is resident from the Shan States, South to Mt. Muleyit in Tenasserim, at elevations of about 2,500 feet and upwards.

Hopwood, apparently, is the only collector who has taken the eggs of this bird, finding two nests, one with one egg and one with two on the 11th May, 1918, on Nwalabo Mountain in Tenasserim. Of these he writes:—"Massive nests, cup-shaped and made externally almost entirely of green moss, lined with a black thread-like fungus. The nests were placed in conspicuous places, five and six feet up in small saplings. We also found two more empty nests, similar in every respect to the others, made of green moss and lined with the same black fungoid thread. In spite of their conspicuousness

when close by, they were very hard to locate in the dense evergreen forest in which the saplings grew."

Two eggs now in my possession measure 30.3×21.5 and 30.3×22.0 mm. A third, sent to Mr. Davidson, measures 32.1×21.1 mm.

In appearance they differ in no way from the eggs of the other races.

Trochalopteron phœnicium.

THE CRIMSON-WINGED LAUGHING-THRUSH.

(156) **Trochalopteron phœnicium phœnicium** (Gould).

THE NEPAL CRIMSON-WINGED LAUGHING-THRUSH.

Trochalopteron phœnicium phœnicium, Fauna B. I., Birds, 2nd ed. vol. i, p. 168.

The typical race of Crimson-winged Laughing-Thrush breeds from Nepal to the extreme East of Assam, the Dibong River probably forming its Eastern limit. It is common round Darjiling, where Gammie took seven nests between 4,000 and 5,000 feet. In 1903 Osmaston found nests up to 6,000 feet and in 1913 Primrose took a nest at "something over 2,500 ft." Inglis says that it is common in the Rangbang Valley between 3,000 and 5,000 feet and Stevens found it up to 5,800 feet in Native Sikkim.

W. P. Masson collected nests and eggs of this species for me near Darjiling and these agree well with Gammie's description:—

"The locality chosen for the nest is in some moist forest amongst dense undergrowth. It is placed in shrubs, at heights from 6 to 10 feet from the ground, and is generally suspended between several upright stems, to which it is firmly attached by fibres. It is chiefly composed of dry bamboo-leaves and a few twigs, and lined with black fibres and moss-roots. A few strings of moss are twisted round it externally to aid in concealing it. It is a moderately deep cup, measuring externally about 5 inches in diameter and 4 inches in height, and internally $3\frac{1}{2}$ inches in width and 2 inches in depth."

The nests sent me by Masson and others taken by Stevens and Osmaston only differ in having a much greater variety of materials. In with the bamboo-leaves are mixed other leaves, pieces of bracken, roots, an odd strip or two of grass, dry moss and even lichen. Another point is that they are often built lower down than 6 feet. Osmaston took one nest in a bramble, 4 feet from the ground, growing in high mixed forest of Oaks, Magnolia etc., and another similar nest in thick undergrowth in Oak and Chestnut forest.

The outer part of the nest appears always to be green moss, usually covering it completely, but sometimes only in patches here and there.

The eggs number two or three, rarely four, and are very beautiful. The ground-colour is a blue, much the same as that of an English



PATH THROUGH WOODS IN WHICH *T. P. BAKERI* COMMONLY BREEDS.
(Near Laisung, N. Cachar Hills, May 1894.)

Thrush's egg, and they have numerous long and short twisted lines and a few spots scattered irregularly all over the surface, seldom being much more numerous at the larger than the smaller end. In colour the marks are a darkish vandyke-brown, sometimes paler. In a few eggs the blotches are much larger and appear as if smudged, and in these there are generally a good many secondary smudges of grey-brown, though in the normal type of egg secondary blotches are few in number or altogether absent.

In shape the eggs are blunt ovals, in some approaching elliptical and in very few pointed ovals.

Fifty eggs average 25.9×18.5 mm.: maxima 28.5×18.5 and 25.4×19.2 mm.; minima 23.5×16.6 mm.

They breed throughout May and June, whilst Osmaston has taken nests with eggs as late as the 7th July.

(157) *Trochalopteron phœnicium bakeri* Hartert.

THE CACHAR CRIMSON-WINGED LAUGHING-THRUSH.

Trochalopteron phœnicium bakeri, Fauna B. I., Birds, 2nd ed. vol. i, p. 169.

This handsome Laughing-Thrush is found throughout the Assam Hills South of the Brahmapootra, Manipur, Lushai Hills and Chin Hills, where it was obtained by both Mackenzie and Hopwood.

It is a bird of evergreen forests between 3,000 and 6,000 feet, being most common between 4,000 and 5,500 feet but ascending still higher than 6,000, as Mr. J. P. Mills observed it breeding between 7,000 and 8,000 feet near Kohima. I do not think it has any predilection for any particular kind of forest so long as it is moist, dense and shady. I have found it many times between 5,500 and 6,200 feet in the Khasia Hills in mixed forest of Rhododendron and Oak with a matted undergrowth of green bushes and bracken, broken up by great boulders covered with moss and ferns and everywhere with little tricklets of water wandering down to the stream which ran through it. Some nests I have taken in ravines running through Pine forest, but these only when the ravine itself has been covered with green trees and ample moist undergrowth; where the Pines stand dry and sombre, with no undergrowth or merely sparse bracken and Daphne bushes, these Laughing-Thrushes never nest. In North Cachar we used to get them breeding in both the deepest and wettest forest and also, but not often, in more open forest bordering the bigger streams.

In the Chin Hills all the three nests taken by Mackenzie were, curiously enough, placed in clumps of bamboos in thick jungle of bamboos and scrub.

The nests are deep cups, deeper than hemispheres, constructed of dry leaves, grass, fine soft twigs, roots, bracken and bamboo-leaves. These last generally form the outer wrapping but are more or less mixed with the other materials and are themselves covered

outside with moss to a less or greater extent. Some nests are so completely covered with green moss that they look like moss-nests with a lining of roots. If, however, they are pulled to pieces the other materials are exposed, and it is also seen that, besides the true lining of roots, there is nearly always an inner lining of dead leaves.

Most nests are built quite low down in brambles, bushes, or Raspberry and Blackberry vines, but occasionally they may be placed in small trees or saplings 5 or 6 feet from the ground.

Occasionally, also, they may be built in clumps of bamboos standing alone in forest, but I have not personally taken any from clumps standing in purely bamboo-jungle.

The eggs number two or three, very rarely four, and are exactly like those of the preceding bird.

One hundred eggs average 26.1×18.5 mm.: maxima 28.0×19.5 and 27.4×20.2 mm.; minima 23.6×18.0 and 25.9×17.1 mm.

Most eggs are laid in May but I have taken nests all through June and again up to the 16th July and as early as the 18th April.

The birds sit close but slip away very quietly when disturbed.

Both birds take part in incubation and I have snared both males and females on the nests. Both sexes also assist in feeding the young and, I think, but am not certain, that both share in the building of the nest.

(158) *Trochalopteron phœnicium ripponi* Oates.

THE BURMESE CRIMSON-WINGED LAUGHING-THRUSH.

Trochalopteron phœnicium ripponi, Fauna B. I., Birds, 2nd ed. vol. i, p. 170.

This race breeds in the Kachin Hills and Shan States between 3,000 and 6,000 feet and is very common in the Bhamo Hills. Mackenzie and Hopwood also record it as common in the Chin Hills in the East and South, though *bakeri* is the common form in the North and West and on the borders of Manipur. Presumably the Central Chin Hills is the meeting and intergrading place of the two subspecies.

I have eggs and nests sent me of *T. p. ripponi* taken by Harrington in May and June, together with a letter in which he describes the former:—

“Nest found on 1.6.05 placed in a small sapling about 6 feet from the ground, at the bottom of a ravine on the edge of a swamp of elephant grass. It is a neat cup-shaped nest, well built of bamboo leaves, lined with fine grasses and fibres. I watched the birds for the whole afternoon and morning but was unable to shoot as they would have fallen into the swamp and been lost. It is a common bird at Sinlum (Bhamo) at 6,000 feet.”

Grant and Cook also took nests near Sinlum and give similar

descriptions, except that their nests were taken in open forest. Hopwood says of his nests that they were all "placed in shrubs in grass and bamboo jungle in fairly open localities. Never found in heavy forest."

They breed in May and June, though Hopwood obtained one nest at 4,500 feet on the 27th April.

Twenty-one eggs average 25.8×18.6 mm.: maxima 27.9×19.1 mm.; minima 24.2×18.1 and 24.8×18.0 .

The exact status of the Chin Hills Crimson-winged Laughing-Thrush wants working out, and with good material it may be proved that all Chin Hills birds belong to the Eastern form.

(159) *Trochalopteron milnei sharpei* Rippon.

THE BURMESE RED-TAILED LAUGHING-THRUSH.

Trochalopteron milnei sharpei, Fauna B. I., Birds, 2nd ed. vol. i, p. 170.

This Red-tailed Laughing Thrush is confined to the Kachin Hills and Shan States between 5,500 and 7,000 feet, possibly a great deal higher also.

In 1908 Harington took the eggs and nests, being the first ornithologist to do so. Later, in 1912 and 1913, Grant took several more nests round Sinlum Kaba, where Harington had taken his eggs. Grant's description merely confirms that of Harington, which is as follows:—

"It is a great skulker, and only found in dense undergrowth in valleys over 6,000 ft.. My first nest was procured by my Burman collector, who also shot the parent bird. As these eggs differed from those of any other Laughing-Thrush I had ever seen or heard of, and were of a totally different type, I thought he must have made some mistake. On the 29th of April, 1908, I luckily found a nest containing three eggs of the same description as those taken by him, so I promptly concealed myself, and managed to shoot both parent birds, who were very noisy and inquisitive. After this I found other nests and procured the parent birds with them, so that there can be no doubt.

"The nests were of the usual type, composed of bamboo leaves and grass, and were placed in bushes or against the sides of trees. The eggs, of which two or three seem to be the usual complement, are very remarkable, being of a dead white, either glossless or having a faint gloss, and are spotted either with dark red or black spots, a few having underlying purplish marks; in fact they are extremely like Orioles' eggs, though the texture is somewhat less smooth and close." Harington might have added "much less glossy," but except for this there is nothing more that one can say about nests or eggs.

In shape the latter are rather broad ovals, with the smaller ends very slightly pointed.

Fourteen eggs average 28.7×20.7 mm. : maxima 29.5×21.0 and 29.3×21.4 mm. ; minima 27.9×20.0 mm.

Grant's eggs were all taken in April from the 13th of that month onwards, but Harington found more in May than in April, taking them up to the end of the former month.

Trochalopteron subunicolor.

THE PLAIN-COLOURED LAUGHING-THRUSH.

(160) Trochalopteron subunicolor subunicolor Hodgs.

THE NEPAL PLAIN-COLOURED LAUGHING-THRUSH.

Trochalopteron subunicolor subunicolor, Fauna B. I., Birds, 2nd ed. vol. i, p. 171.

This Laughing-Thrush occurs all along the outer ranges of the Himalayas from Nepal to the Dibang in Assam at elevations of 6,000 feet upwards. Meinertzhagen obtained it up to 11,300 feet and at Pashoke, 2,700 feet, in December. Stevens, however, has not obtained it in Sikkim below 6,000–7,000 feet.

Hodgson says that "it nests in open forests and groves, building its nest on some low branch of a tree, two or three feet from the ground, between a number of twigs. The nest is large and cup-shaped ; one measured externally 5.5 diameter and 3.38 in height ; internally 2.75 inches deep and 3.12 in diameter. The nest is composed externally of grass and mosses lined with soft bamboo leaves. Three or four eggs are laid, unspotted greenish-blue. One is figured as 1.07×0.7 ."

Since Hume's time only Osmaston has taken its nest and eggs, at 6,500 feet near Darjiling. This nest was built in mixed deciduous high forest, at an elevation of 6,500 feet.

It contained three eggs which are plain spotless blue, rather pale and dull and very faintly tinged with green. In shape they are long blunt ovals. They measure 29.5×23.0 to 30.3×23.0 mm.

Trochalopteron affine.

THE BLACK-FACED LAUGHING-THRUSH.

(161) Trochalopteron affine affine (Blyth).

THE NEPAL BLACK-FACED LAUGHING-THRUSH.

Trochalopteron affine affine, Fauna B. I., Birds, 2nd ed. vol. i, p. 172.

This is the most alpine or truly palæarctic form of all the Laughing-Thrushes, occurring in the Himalayas from Nepal to Sikkim and Bhutan at great altitudes, ascending in Summer up to 13,000 and even in Winter up to 10,000 feet.

Osmaston took the nests of this bird in 1902, and thus records his success (Journ. Bomb. Nat. Hist. Soc. vol. xiv, p. 815, 1903):—

“This species is fairly common at elevations from 9,000 to 13,000 feet in the Rhododendron and Fir forests of the Singalila Ridge. I found three nests of this bird on the 31st May, 1902, in Rhododendron and Viburnum bushes, 5 to 8 feet from the ground, at an elevation of about 11,500 feet. The nests were rather massive but neat cups, about 8 inches in external diameter, and were composed of moss, thin twigs and dry grass stems, lined copiously with the black rhizomorph of a fungus (resembling thin black roots) mixed with some birch-bark ‘paper.’ Two of the nests each contained two slightly set eggs and the third two freshly hatched young.”

In 1909 and 1911 Masson worked the higher parts of this same Singalila Ridge, 9,000 to 12,000 feet, and sent me a nice little series of nests and eggs with the skins of the parent birds.

A nest secured in 1909 was said to have been taken in high bushes; whilst those taken in 1911 were in Rhododendron-trees about 6 feet up or in bushes 4 to 5 up. The nests are, as described by Osmaston, deep well-built cups about $7\frac{1}{2}$ inches across by about 4 deep. They were made outwardly principally of moss, both dry and green, with the inner part of grass, roots, twigs and leaves and then lined with the same black rhizomorph mentioned by Osmaston. All the nests sent to me were taken in May, and of these one contained three eggs, the others each two only.

The ground-colour varies from moderately pale to quite a deep blue, with a greenish tinge. They are all marked with a few brownish- or reddish-black spots and blotches and one or two short twisted lines. These are nearly all confined to the larger end, except in one clutch, and are sparse or absent elsewhere. In one clutch nearly all the markings consist of dark red-brown scriggles and lines at the extreme larger end.

Twelve eggs average 28.5×21.2 mm. : maxima 31.2×21.5 and 28.8×22.1 mm. ; minima 27.6×21.4 and 28.1×19.9 mm.

Trochalopteron variegatum.

THE VARIEGATED LAUGHING-THRUSH.

(162) *Trochalopteron variegatum variegatum* (Vigors).

THE EASTERN VARIEGATED LAUGHING-THRUSH.

Trochalopteron variegatum variegatum, Fauna B. I., Birds, 2nd ed. vol. i, p. 173.

The range of this subspecies is from Chamba East through the Simla States and Garhwal to Nepal. Hume gives the breeding elevation as from 4,000 to 8,000 feet, but 4,000 feet must be too

low and I can trace no authentic records of nests or eggs having been found at this elevation. To quote a few of the ornithologists who have taken many eggs. Whymper speaks of 7,000 to 9,000 feet as the breeding belt in Garhwal; in Simla Dodsworth took one clutch at 6,500 feet, but others at 7,000 and 7,500 and upwards. From the same State Jones has sent me clutches of eggs taken at 8,000 and 8,600 feet and one only as low as 7,500; finally, Osmaston took, or saw, many nests at Chakrata at about 9,000 feet elevation.

They breed in forest of various kinds; Oak, Oak and Silver Fir, Deodar, mixed forest in deep nullahs but, whatever the forest, sometimes dense and sometimes more open, a thick undergrowth seems essential. The nest may be placed low down in bushes or in small saplings, Oaks, Silver Fir and others, from 6 to 10 feet up. On the other hand Hume actually "obtained one placed in a thick tuft of grass, growing at the roots of a young Deodar, not above six inches from the ground."

Hume says the nest is a "pretty compact, rather shallow cup, composed exteriorly of coarse grass, in which a few dead leaves are intermingled; it has no lining but the interior is composed of rather finer and softer grass than the exterior, and a good number of dry needle-like fir leaves are used towards the interior. It is from 5 to 8 inches in diameter exteriorly, and the cavity from 3 to 3.5 inches in diameter and about 2 inches deep."

Osmaston and Whymper both found a good many leaves built into the body of the nest and at times fine twigs, roots and lichen (*Usnea barbata*) were also employed for this part of the nest, whilst all my correspondents mention a lining of some kind, generally grass, though Whymper found pine-needles often used for this purpose. Jones also sometimes found scraps of grass used on the outside of the nest.

The principal breeding month is June, though many birds lay towards the end of May, whilst others continue breeding through July. Hume also apparently found eggs in April.

The eggs number two or three and I have never seen or heard of four, though Hume speaks of four being laid and, as this number is sometimes laid by the Western form, presumably it may also be laid by the Eastern.

They are handsome eggs, the typical blue or blue-green in colour, a trifle deeper and brighter than in most, whilst they are also more profusely blotched and spotted than the eggs of any of the preceding Laughing-Thrushes except those of the *phœniceum* group. The blotches, some quite large and as much as 2 to 4 mm. across, are scattered over the whole surface, but nearly always more numerous at the larger end. In colour they range from what Hume calls a pale "liver red" to red brown, dark brown or brownish-black. Secondary markings are seldom present but, when they are, are of a pale reddish-grey.

Sixty eggs average 28.6×20.7 mm.: maxima 31.1×22.0 and 30.0×22.5 mm.; minima 26.1×20.2 and 26.2×20.0 mm.



TROCHALOPTERON VARIEGATUM SIMILE.
The Western Variegated Laughing-Thrush.
(Dungagali, 1905.)

In shape the eggs are broad ovals, generally very obtuse at the smaller end. The texture is not, I think, quite as close and fine as it is in most *Trochalopteron* eggs and there is no gloss.

Jones says that the birds sit very close, though they never allow the intruder to reach the nest before they slip quietly off into the undergrowth, skulking round until the unwanted visitor disappears.

(163) *Trochalopteron variegatum simile* Hume.

THE WESTERN VARIEGATED LAUGHING-THRUSH.

Trochalopteron variegatum simile, Fauna B. I., Birds, 2nd ed. vol. i, p. 174.

The Western form of Variegated Laughing-Thrush is found resident from the Afghan frontier and Gilgit through the Western parts of Kashmir to the Murree Hills. How far East it extends and where it meets true *variegatum* has never been defined. Probably the Ravi or the Beas River will be found to be the South-Eastern limit. It does not, of course, occur at Naini Tal, where *variegatum* is common. In the 'Fauna' Naini Tal is a mistake for Nang Tiba.

In Chitral Fulton records this Laughing-Thrush as very common in the lower valleys up to 6,000 feet, whilst Whitehead met with a flock at Samana at 5,600 feet in December. Round Murree Rattray records it breeding in numbers from about 7,000 feet in the Galis to 10,000 on Miranjani. Unfortunately, though he took beautiful photographs, he wrote very short notes, and merely remarks: "Very common round Murree and the Galis up to 10,000 feet. Nests generally from 15 to 20 feet up in a fir tree, often quite at the end of a bough. Eggs generally 3 but I have found 5."

From his notes sent to me with the eggs the above may be amplified by the following summary:—

The nest is a deep cup made principally of grass but with leaves, roots and sometimes a little moss intermixed; there is a meagre true lining of roots or rhizomorph under which there are nearly always dry leaves. It is neither a well-made nor a compact nest and is sometimes held together outside with a few weed-stems, bits of creeper or long roots. In a few nests there are bits of moss on the outside but never enough to make the nests look as if made of moss. They breed all through May and June, keeping at this time entirely to forest and frequenting the heavily wooded ravines on the sides of the hills.

In Kashmir Ward records eggs as having been taken up to the 8th of August. The eggs, individually, cannot be distinguished from those of the preceding bird's but, as a series, they are paler eggs with bigger blotches more sparingly scattered over the egg.

As already recorded, Rattray once took a clutch of five eggs and I have also a clutch of four taken by him and another of four

taken by Buchanan at Changla Gali. The normal clutch, however, is undoubtedly three only.

Sixty eggs average 27.8×21.0 mm. : maxima 29.3×20.2 and 28.0×21.5 mm. ; minima 25.9×20.4 and 26.4×19.7 mm.

There is no difference in texture and shape between the eggs of the Eastern and Western forms of Variegated Laughing-Thrushes.

(164) *Trochalopteron squamatum* (Gould).

THE BLUE-WINGED LAUGHING-THRUSH.

Trochalopteron squamatum, Fauna B. I., Birds, 2nd ed. vol. i, p. 174.

The Blue-winged Laughing-Thrush extends from Nepal to the extreme East of Assam, both North and South of the Brahmapootra, to the Northern Arrakan Yomas, the Chin and Kachin Hills and the North and South Shan States, whilst Forrest also obtained it on the Salwin-Shweli Divide in Yunnan.

Gammie many years ago found this bird breeding in Sikkim at Mangphoo, 3,500 and 4,500 feet, on the 18th May and the 30th April, whilst Hodgson records their breeding in Nepal from 2,000 to 6,000 feet. Osmaston, however, took their nests round about Darjiling at 6,500 to 7,000 feet.

In the Hills South of the Brahmapootra I found very many nests, nearly always between 3,000 and 4,000 feet, and above this up to 5,000 feet more sparingly. On one occasion only I took a nest above this height, nearly 6,000 feet, near Hungrum. My nests were nearly all found in quite low bushes between 2 and 4 feet from the ground; one or two were built higher up in tall bushes and one on a sapling about 7 feet up. A very favourite site was a mass of Blackberry or Raspberry vines, sometimes growing in a tangle by themselves, sometimes clambering over and mixed up with some low bush. Always they were built in wet humid forest, generally in very thick jungle but sometimes in fairly open woods. They seemed to prefer, as so many birds do, the vicinity of streams, especially where these ran through well-wooded, damp forest with numbers of baby streamlets running into the bigger ones at the bottom of the valleys. The nest is a deep, compact, well-made cup measuring some 6 to $7\frac{1}{2}$ inches in diameter and from $3\frac{1}{2}$ to $4\frac{1}{2}$ inches in depth externally; the egg-cavity measures roughly about 4 by $2\frac{1}{2}$ inches. It is constructed of leaves, fine twigs, grass and roots, with, perhaps, a few scraps of moss added to the outside; the whole of this is quite tightly bound round with a few tendrils, long roots and, less often, with one or two weed-stems. Inside this there are nearly always some bamboo-leaves, the birds sometimes bringing these from quite a distance, while the true lining consists of roots or a fine brown fibre, probably the rhizomorph of a fungus.

Gammie describes one nest as "composed of dry bamboo leaves, held together by stems of delicate creepers and lined with a few black fibres." I have seen no nests as primitive as this and the

next nest he found seems from his description to have been very similar to those seen by myself.

May is the normal breeding month for this species. Hodgson says May and June, but in the lower hills we found very few in the latter month and both Gammie and I found fresh eggs on the 30th April. Osmaston, on the other hand, took one nest near Darjiling, 6,700 feet, as late as the 7th July.

The eggs number two to four, four very seldom, two only very often. In colour they are a beautiful, rather deep and very slightly greeny-blue, quite spotless and with a fine satiny surface, unlike that of most Laughing-Thrushes. They have no real gloss, though when fresh they have a very lovely sheen. The texture is similar to that in the eggs of the Barbets, though those, of course, are white. In shape they vary from rather broad to rather long ovals.

Fifty eggs taken by myself average 29.4×20.7 mm. : maxima 33.2×22.1 and 29.9×22.7 mm. ; minima 26.8×19.4 mm.

Osmaston's eggs, taken at high levels in Sikkim, differ distinctly from the Assam eggs in being much paler and, on an average, decidedly bigger, his nine eggs averaging 29.9×22.2 mm. and running up to 33.6×24.2 mm.

These nine eggs are not included in the 50 eggs referred to as measured by myself.

Both birds take a share in incubation and both, also, take a part in construction of the nest, though it may be that the share of the cock is confined to the bringing of materials.

Trochalopteron cachinans.

THE RUFOUS-BREASTED LAUGHING-THRUSH.

(165) **Trochalopteron cachinans cachinans** Jerdon.

THE NILGIRI RUFOUS-BREASTED LAUGHING-THRUSH.

Trochalopteron cachinans cachinans, Fauna B. I., Birds, 2nd ed. vol. i, pl 176.

This Laughing-Thrush has a very restricted range, being found only on the Nilgiri Hills from 4,500 feet upwards.

The nest of this bird is placed on a bush or small tree at all heights from 3 or 4 feet to 12 or even 15 above the ground. Betham says that well-wooded *sholas*, that is to say, copses or woods filling the valleys between the hills, are nearly always selected as sites, the nest being built on a bush or tree not very far in from the edge of the forest. It has also been known to breed in gardens with quiet remote shrubberies, but this is exceptional.

The nest is well described by Howard Campbell, who took many nests in the Nilgiris :—

“These birds are extremely common, laying at all heights above 5,000 feet, generally building their nests in the *sholas*, where there is good cover. The nests are neat but fairly big cups, the depth and diameter being about the same, some five or six inches each way.

They are made of grass, roots, moss and a little lichen, and are lined with roots and a fibre which they obtain from the bark of the Peruvian Cherry, in addition to which they may often have a lot of feathers and, sometimes, scraps of wool, hair or fur. The amount of moss used varies considerably. In some nests the whole of the basis on which it is made is moss and the same material covers practically the whole of the outside. In other nests there is very little moss on the outside, though I don't remember any nests with none at all. I have seen nests in which many skeleton leaves were incorporated and a few in which the birds had used spiders' webs and egg bags."

Miss Cockburn gives a description of its nest much the same as Campbell's, but she says "there is a lining of fine grass and roots and the withered fibrous covering of the Peruvian Cherry (*Physalis peruviana*), the nest being *finished with a few feathers*, in general belonging to the bird." (The italics are mine.)

Darling also says that "the cavity is lined with fur, cotton-wool, feathers etc.," so that evidently fur and feathers do enter into the composition of the lining sometimes, although recent observers have not recorded this.

Other nests taken by Carter, Miss Cockburn, Davison etc. agree well with Campbell's description. All these observers, and others, give the normal nesting-season as February to May inclusive; Bates, however, found them continuing to breed much later. On the 10th of July he found that a pair of birds were busy building, and on the 20th July he obtained a second nest with two fresh eggs.

The birds have the reputation of being very shy and nervous but Bates found one pair, of which he was photographing the nest, extraordinarily tame.

The normal full complement of eggs is two, and three are seldom laid. Wait, writing from Coonoor to Hume, said that "*T. cachinans* breeds about May and lays from three to five oval eggs," but no other correspondent of Hume's ever found more than three.

The eggs are pale blue and the markings consist of indefinite blotches, spots and specks of pale reddish-brown and dark brown with a few nearly black. Here and there are short lines of the same colour and in some a few smudges. In my series I have no very unusual specimens but Hume writes:—"In some eggs the markings are almost entirely wanting, there being only a very faint brownish-pink freckling at the large end; and in many eggs, even in some that are profusely spotted all over, the markings consist only of darker or lighter brownish-pink shades."

All my eggs are rather short, blunt ovals but Hume had some pyriform eggs and remarks that these are common. His eggs are all in the Natural History Museum but there are few pyriform ones among them.

Forty eggs, including Hume's, average 25.6×18.8 mm. : maxima 26.2×19.4 and 26.1×20.9 mm. ; minima 23.0×18.4 and 24.1×17.9 mm.



TROCHALOPTERON JERDONI FAIRBANKI.
The Travancore White-breasted Laughing-Thrush.
(Kodaikanal, Palni Hills, 1929.)

Trochalopteron jerdoni.**THE WHITE-BREASTED LAUGHING-THRUSH.****(167) Trochalopteron jerdoni jerdoni (Blyth).****THE BANASORE WHITE-BREASTED LAUGHING-THRUSH.**

Trochalopteron jerdoni jerdoni, Fauna B. I., Birds, 2nd ed. vol. i, p. 177.

The Banasore Laughing-Thrush is found in the Coorg and Wynaad Hills from 4,000 feet upwards and, as it is a resident bird, must breed wherever found. Mr. Morgan adds the Pálghát Hills and the Chinna Coonoor Ghats to its range but its occurrence in these hills has never been confirmed since.

Very little is known about this bird's habits and nothing has been recorded about its nidification. Mr. A. P. Kinloch found its nest and two eggs, which he sent to me. They were taken on the 24th April, 1926, at Nellialam in the Wynaad Hills, and the covering letter says: "I found the nest in the hill built in a *shola* and disturbed the bird from it; it was just like *T. cachinans* in shape and colour but had a striped breast."

The two eggs are similar to the most ordinary type of egg of the Nilgiri Laughing-Thrush and measure 26.1×19.8 and 25.1×19.2 mm.

(168) Trochalopteron jerdoni fairbanki Blanf.**THE TRAVANCORE WHITE-BREASTED LAUGHING-THRUSH.**

Trochalopteron jerdoni fairbanki, Fauna B. I., Birds, 2nd ed. vol. i, p. 178.

This is another bird with a very small range, being found only in the Palni and Annamali Hills.

Fairbank, after whom the bird was named, discovered it and took its nest at Kodaikanal, in the Palni Hills, in May and records the nest as being built "in the crotch of a tree, at about 10 feet from the ground and at an elevation of nearly 6,500 feet." The next to take the eggs was Major Terry in May, 1883, but from then onwards no one obtained nests until Howard Campbell did so in 1892 and, after another long gap, Stewart took two nests, each with two eggs, at 7,000 feet, in 1919. Finally we have Capt. R. S. P. Bates's beautiful photos and excellent description of nests and eggs found in 1929 and given in his charming book 'Bird Life in India.' Here he writes: "The Travancore bird (*T. j. fairbanki*) prefers open jungle and bush-dotted hill-sides to the deeper sholahs. It is cautious certainly but very far from shy, and inhabits every garden and hedgerow within Kodaikanal itself. Its nidification too is different [to that of the Nilgiri Laughing-Thrush]. Out of eight nests found by me around Kodaikanal but one contained

more than a trace of moss, ninety per cent. or more of the materials being coarse grass and a few bracken leaves with an inner lining of slightly finer grass. This compact nest is placed either in the dense part of a bush or in thick bracken, which clothes many of the hill-sides on the summits of the Palni Hills." In a letter to me he adds to the above: "They are very familiar birds and one nest I found in a hedge dividing two gardens. Of others I found two were in bracken, three in isolated bushes and one in an open part of a sholah. They are always well concealed."

The eggs cannot, I think, be distinguished from those of the Nilgiri bird. Fifteen average 25.6×19.1 mm. : maxima 27.0×19.4 mm. ; minima 25.2×18.7 and 25.3×18.5 mm.

Of the few eggs collected some have been taken in each month between the 14th of February (Howard Campbell) to the 30th May (Major Terry). It should be noted, however, that Bates found eight nests in March.

(169) *Trochalopteron jerdoni meridionale* Blanf.

THE MYNALL WHITE-BREASTED LAUGHING-THRUSH.

Trochalopteron jerdoni meridionale, Fauna B. I., Birds, 2nd ed. vol. i, p. 178.

This Laughing-Thrush inhabits North Travancore, where specimens have been obtained from Chinnipanni, the Patnas, Mynall and the Autchincoil Gap on the Ghats.

The only collector to take the eggs of this bird is Mr. J. Stewart, whose two clutches are now in my collection. The nests are described as just like those of the Nilgiri Laughing-Thrush, but they are said to be such shy, secretive birds that their nests are very hard to locate, though Mr. Stewart devoted "many days searching for them. The two nests were taken on the 10th June, 1906, and 4th June, 1912, and were found at an elevation of about 3,000 feet in thick evergreen forest."

The eggs are not in the least like what I should have expected; indeed, had I been asked what they were I would have said they had been laid by the Nilgiri Blackbird. Mr. Stewart is, however, satisfied with their identification and it would be curious if he made exactly the same mistake twice over at intervals of three years. In ground-colour the eggs are a very pale dingy blue-grey and they are marked with blotches of red-brown, mostly at the larger end, but fairly numerous everywhere. There are also a few spots of pale lavender and neutral tint. In shape they are broad blunt ovals and the texture is rather coarse and not very clear, without any definite gloss.

The six eggs average about 26.0×19.3 mm.

(170) *Trochalopteron virgatum* Godw.-Aust.

THE MANIPUR STREAKED LAUGHING-THRUSH.

Trochalopteron virgatum, Fauna B. I., Birds, 2nd ed. vol. i, p. 179.

The habitat of this Laughing-Thrush includes the whole of the hill-ranges South of the Brahmapootra down to the Chin Hills, where it breeds between 3,000 and 8,000 feet and is, apparently, common at these elevations wherever it occurs at all.

It frequents forest and, in Assam, undoubtedly prefers damp evergreen forest with dense tree-growth and heavy undergrowth. It was, however, almost equally common at 4,500 to 5,000 feet elevation in the more open stunted Oak forest, where the undergrowth consisted of Caladiums, Balsalms, Jasmine and an endless wealth of bracken, with ferns of many descriptions. Here, too, the forest was more or less humid and each tree bore its own heavy crops of long hanging moss and masses of orchids. In the Chin Hills, Mackenzie found it "building in thick bushes in open jungle. or in the grass round the base of a bush." All the nests found by me—and they were many—were either in thick low bushes or, rarely, in high bushes or in thickly foliaged Rhododendrons up to about 8 feet from the ground. Wherever placed they were well concealed and quite inconspicuous.

The nest itself is a deep, stoutly built cup, the principal materials used in its construction being tendrils, dead leaves, grasses, roots and fine bents, sometimes a few bamboo-leaves, bracken or fern-fronds and generally a good deal of moss. The nests vary a good deal in shape, materials and other details. One found in a thick growth of weeds and brambles, resting almost, if not quite, on the ground, had the main body of the nest built of bamboo-leaves and other leaves, intermixed with moss and tendrils and also bound outside with the latter and a few weed-stems, the moss projecting through and giving a dull brownish-green tint to the whole nest. This was a very deep nest, the egg-cavity measuring about 3·2 inches in diameter by 3·5 deep. Another nest, taken from a fork of a small sapling, was more compact and neat, the outer sizes being about 6 by 4 inches and the inner 4 by 2½ inches. In this nest there were no bamboo-leaves but more tendrils. In many nests the lining is a deep red, fern and lichen roots of this colour only being used.

A few birds begin to breed in April and I have seen fresh eggs on the 15th of that month. They lay throughout May and in smaller numbers through June, whilst my latest date for eggs is the 19th July.

They lay two or three eggs only, more often two than three, which are in colour a beautiful clear blue with only a slight greenish tint, not always present. In shape they are broad ovals, the smaller

end blunt. The texture is fine and smooth but *not*—as I wrote in 'The Ibis' some 37 years ago—like that of *Dryonastes sannio*. The egg of this latter bird is much more glossy, hard and close. The grain of the Streaked Laughing-Thrushes' eggs is not very close or hard and the surface is more like the sheen of satin than a china gloss.

One hundred eggs, including 36 measured by Mackenzie, average 26.0×19.2 mm.: maxima 29.2×20.7 mm.; minima 23.1×18.0 and 24.5×17.5 mm.

Trochalopteron lineatum.

THE STREAKED LAUGHING-THRUSH.

(171) Trochalopteron lineatum lineatum * (Vigors).

THE NEPALESE STREAKED LAUGHING-THRUSH.

Trochalopteron lineatum lineatum, Fauna B. I., Birds, 2nd ed. vol. i, p. 180.

The typical form of Streaked Laughing-Thrush is restricted to Nepal and Sikkim.

I can find nothing on record about the breeding of this bird but Masson obtained one nest and eggs which he sold to Rattray and which later came into my possession. Beyond the fact that they were taken in Native Sikkim on the 27th May, I have been unable to obtain further data.

The eggs are, of course, exactly like those of the well-known race from Simla and measure 25.5×18.7 , 26.4×19.0 and 26.1×18.5 mm.

(172) Trochalopteron lineatum grisescens (Hartert).

THE SIMLA STREAKED LAUGHING-THRUSH.

Trochalopteron lineatum grisescens, Fauna B. I., Birds, 2nd ed. vol. i, p. 181.

This, the best known of all the Streaked Laughing-Thrushes, is extremely common throughout South Kashmir, Kuman, Simla States and Garhwal.

So common is this bird throughout its breeding range that no

* This is not the place in which to discuss nomenclature, but I would point out that Ticehurst and Whistler consider that because the very great majority of Vigors's birds were probably obtained about Simla and Almora, therefore they can designate this as the type-locality. As, however, all Vigors's birds could never have been obtained in these districts, *i. e.*, the Bustard and *Ianthocincla ocellata*, it is not permissible to alter type-localities previously fixed, such as Hartert's designation of Nepal in the present instance, and his name of *grisescens* for the next bird must stand.

recent observer has troubled to augment Hume's copious notes on its nidification. Hume says :—

"Next to the House-Sparrow the Himalayan Streaked Laughing-Thrush is perhaps the most familiar bird about our houses at all hill-stations of the Himalayas Westward of Nepal and throughout the lower ranges on which these stations are situated ; this species breeds at elevations of from 5,000 to 8,000 feet.

"It lays from the end of April to the beginning of September, and very possibly occasionally even earlier and later.

"So far as my experience goes, the nests are always placed in very thick bushes or in low thick branches of some tree, the Deodar appearing to be a great favourite. Those I found averaged about 4 feet from the ground, but I took a single one from a Deodar tree fully 8 feet up. The bird, as a rule, conceals its nest so well, that, though a loose and, for the size of the architect, a large structure, it is difficult to find, even when one closely examines the bush in which it is. The nest is nearly circular, with a deep cup-like cavity in the centre, reminding one much of that of *Crateropus canorus*, and is constructed of dry grass and the fine stems of herbaceous plants, often intermingled with the bark of some fibrous plant, with a considerable number of dead leaves interwoven in the fabric, especially toward the base. The cavity is neatly lined with fine grass-roots, or occasionally very fine grass. The cavity varies from 3 to 3.5 inches in diameter, and from 2.25 inches to 2.75 in depth ; the walls immediately surrounding the cavity are very compact, but the compact portion very rarely exceeds from .75 to 1 inch in thickness, beyond which the loose ends of the material straggle more or less, so that the external diameter varies from 5.5 inches to nearly 10.

"The normal number of eggs is three, although Captain Beavan cites an instance of four being found."

Hutton and Marshall found the nest to be sometimes placed on the ground on banks, concealed among the grass-roots.

There is little one can add to the above, but some of my correspondents give moss as a material used in some of the nests they have seen, whilst Osmaston found pine-needles used in the lining of some nests taken by him near Chakrata at 6,500 and 8,000 feet.

The birds breed in forest, open tree jungle, road-side thickets and even in gardens.

The eggs normally number three but four are not very exceptional, and several clutches of this number were taken by Dodsworth around Simla. They are greenish-blue in colour, more blue than green, and quite spotless, with a close, even and fairly fine texture, but only slightly glossy. In shape they are usually moderately broad ovals, very little compressed at the larger end, though, as one would expect in so common a bird, variations in shape of all kinds are constantly met with.

One hundred eggs average 25.6×18.4 mm. : maxima 30.2×20.1 mm. ; minima 23.1×17.3 mm.

(173) *Trochalopteron lineatum gilgit* Hartert.

THE GILGIT STREAKED LAUGHING-THRUSH.

Trochalopteron lineatum gilgit, Fauna B. I., Birds, 2nd ed., vol. i, p. 182.

The Gilgit race of Streaked Laughing Thrush is found from Chitral, the Khagan and Kurram Valleys, Gilgit, North Kashmir, extending to "Baltistan in Indus Valley as far East as Shardu" (Ludlow).

There is nothing on record as to the breeding of this subspecies. Ward says it is not rare in Gilgit and Whitehead says it is common up to 7,000 feet in Summer on the Kohat and Kurram frontiers.

The only nests taken are apparently one by Ward containing four eggs at Shirol, Gilgit, on the 21st May and one by Harington, with three eggs, taken in the Khagan Valley at 7,000 feet on the 5th June.

Ward in *epistola* writes: "So far as I remember the nest is not different in any way from those of other Striated (? Streaked) Laughing Thrushes"; whilst on Harington's data-ticket is written: "Placed on stump, 7,000 ft., the bird shot, eggs incubated."

The average of the seven eggs is 24.9×18.5 mm., whilst in appearance they can be matched by any number of the preceding bird's eggs.

(174) *Trochalopteron lineatum ziaratensis* (Ticehurst).

THE BALUCHISTAN STREAKED LAUGHING-THRUSH.

Trochalopteron lineatum ziaratensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 182.

This bird was described by Ticehurst from Ziarat but he does not define its distribution. It may be the same as Sarudny's *bilkeritchii*, which I have not seen.

Major C. H. T. Whitehead took a nest of this Laughing-Thrush at Ziarat on the 30th June containing two eggs. The nest is said to have been taken from Juniper scrub at Ziarat at an elevation of 9,000 feet.

The eggs measure 26.3×19.0 and 26.0×18.8 mm. They are, of course, just like other eggs of the Streaked Laughing-Thrush.

Major Ch. Williams (Journ. Bomb. Nat. Hist. Soc. vol. xxxiii, p. 509, 1929) says that this race of Streaked Laughing-Thrush is fairly common and resident in the higher bush-covered slopes of the hills. It breeds freely on Ziarat and on the Zurghum slopes. He obtained a nest "on the 17th May, in a fair-sized leafy bush at the head of the Marachak Tangi and, on visiting it a week later, shot the bird off the nest and secured a clutch of four fresh eggs. The nest was a massive structure of fibrous material and bulbous plant stems, lined with fine grass stems and hair, and placed about

4' high in a green thornless bush. The diameter of the inside cup was nearly 3 inches and its depth about 2 inches. The thickness of the walls of the nest was approximately 2 inches."

Grammatoptila striata.

THE STRIATED LAUGHING-THRUSH.

(177) Grammatoptila striata striata Vigors.

THE SIMLA STRIATED LAUGHING-THRUSH.

Grammatoptila striata striata, Fauna B. I., Birds, 2nd ed. vol. i, p. 184.

The Simla Striated Laughing-Thrush breeds in the Outer Himalayas from the Sutlej Valley to Western Nepal.

This is another of the very common forms about which little or nothing is recorded. Rattray took its nest at Murree; Jones and Dodsworth took them round Simla, where they were observed up to 8,000 feet; Whympers found them breeding in numbers round Jeolikote and Naini Tal and gave me a fine series of eggs from these places. The following is a summary of his notes, sent with the various clutches:—

"This bird is very common all round Naini Tal, where it is much cuckolded by *Coccyzus coromandus*, and I have found as many as four Cuckoo's eggs in one nest. The nests do not vary very much. Most of them are placed rather high up in small trees and in Deodars, some of them as much as 20 feet up. At other times they may be placed comparatively low down in thick bushes, sometimes not more than three or four feet from the ground. So far as I know they breed principally in forest between 4,000 and 7,000 feet. The nests are very big, rather shallow cups with receptacles for the eggs, which measure about 4 inches across by about $2\frac{3}{4}$ deep. They are made of tendrils and creepers, mixed with roots and generally with a great deal of moss and green fern on the external walls of the nest. The lining is of roots and fibre and the walls of the nests are strongly bound to the supporting branch, and I have seen the materials wound round a creeper in which it was slung at about 20 feet up, against a tree on which the creeper was climbing. The nests are nearly always well and strongly made.

"The breeding season is late, May, June and July, though perhaps a few birds may breed a little earlier.

"The eggs are invariably two in number."

The eggs are the ordinary pale blue of so many other Laughing-Thrushes, spotless, with a fine smooth texture but with very little gloss. In shape they are long ovals, sometimes a little pointed at the smaller end.

Thirty-five eggs average 33.3×23.3 mm.: maxima 35.0×23.4 and 34.2×23.9 mm.; minima 31.0×23.6 and 32.4×23.0 mm.

(177a) *Grammatoptila striata sikkimensis* Ticehurst.

THE SIKKIM STRIATED LAUGHING-THRUSH.

Grammatoptila striata striata, Fauna B. I., Birds, 2nd ed. vol. i, p. 184 (part.).

Grammatoptila striata sikkimensis, ibid. vol. viii, p. 600.

The range of this race is from Eastern Nepal to Bhutan, but how far East to the hills of Northern Assam is not yet known. Neither Coltart, Stevens nor I ever had it brought us from the Daffa, Miri or Abor Hills.

Gammie and Mandelli found this Striated Laughing-Thrush breeding in Sikkim between 5,000 and 6,000 feet but Stevens records it between 3,500 and 7,500 feet for the outer ranges and at 2,500 in some of the interior valleys.

Its nidification is similar to that of the Simla bird but there is generally more moss used in the construction of the nest. Some nests shown me by Stevens look as if made externally entirely of moss until they are carefully looked into and dissected. Gammie and Mandelli took all their nests from small trees and saplings at heights of from 8 to 20 feet up. So far they have not yet been recorded as breeding in bushes but Stevens found several nests built in the tops of tree-ferns, where they were subject to considerable swaying movements when there was any wind.

The breeding season lasts from May to the end of July, most eggs being laid in the first-named month. The eggs only differ from those of the last bird in being more pointed, a feature already alluded to by Hume. Stevens suggests that this character may be connected with the excessive rolling they get in their elevated, wind-blown nesting-sites.

One egg in a clutch of two, taken by Stevens, has about a dozen bold blotches of light brown at the larger end, the other egg having only a few tiny spots of the same. Some of Gammie's eggs have also got traces of marks on them, though none so definite as in Stevens's specimen.

Sixteen eggs average 33.1×22.7 mm.: maxima 35.0×22.5 and 34.4×24.1 mm.; minima 31.5×21.3 mm.

(178) *Grammatoptila striata austeni* Oates.

THE ASSAM STRIATED LAUGHING-THRUSH.

Grammatoptila striata austeni, Fauna B. I., Birds, 2nd ed. vol. i, p. 185.

The Assam, or Austen's, Striated Laughing-Thrush occurs throughout the hills of South Assam, as well as to the East of the Subansiri watershed, North of the Brahmapootra, so it may also be found further West into the North Assam Hills. It has been obtained breeding in the Chin Hills.

I found this fine Laughing-Thrush breeding in some numbers in the Khasia Hills between 5,000 and 6,200 feet and in the North Cachar Hills and adjoining Naga Hills between 4,500 and 8,000 feet, whilst Hopwood took two nests in the Chin Hills at about 4,500 feet.

We both found them breeding in deep forest of great trees with plenty of undergrowth and where there was much moisture. The only other kind of situation in which I obtained nests was in the stunted Oak (*Quercus serratifolia*) forests at about 5,000 feet elevation in North Cachar, where, however, there was ample undergrowth. They also breed in the thick Pine forests above Shillong and are one of the few species which occasionally place their nests in the Pine-trees.

The nest is similar to that of the other Striated Laughing-Thrushes, large cups measuring up to $8\frac{1}{2}$ or 9 inches in diameter and 6 inches in depth, whilst the egg-cavity is generally a perfect hemisphere about 4 inches by 2. The bulk of the nest is composed of a miscellany including leaves, grass, roots, tendrils, creepers and bamboo-leaves in varying amount; some of these ingredients may be altogether missing in some nests, more plentiful in others. In every nest I have seen there has been much green moss on the outside, sometimes covering the whole of the sides and lips, sometimes only half covering them. They are often built on small trees, 6 to 10 feet up, and twice I have found them on small Pine-trees, very conspicuous objects from some yards away. Their favourite sites, however, are in thick bushes, 2 to 4 feet from the ground and very well concealed.

In the Chin Hills Hopwood took eggs, two clutches of three, on the 29th of April, but in the Assam Hills May and June were the normal breeding months, whilst I have had brought to me fresh eggs taken above Margherita, in Assam, on the 2nd August.

This race seems to lay three eggs almost as often as two. They are exactly like the eggs of the other subspecies but are not so pointed as those of the Sikkim bird and, though I have seen big series of these eggs, I have never seen any with marks on them.

Thirty-four eggs average 31.5×23.5 mm. : maxima 35.0×22.8 and 31.6×24.5 mm. ; minima 29.2×23.0 and 34.6×22.1 mm.

I cannot say what part the sexes take in building the nest as I have never had a chance of watching the operation, but we have snared both sexes on the eggs, so it is certain that the male takes his share in this part of their domestic work. They are rather individualistic birds, some being very shy and sneaking off the nest before there is any danger of being observed, whilst others stay on until the last minute.

Like the Naini Tal bird, this form of Striated Laughing-Thrush is also much cuckolded by *Clamator coromandus*.

Stactocichla merulina.**THE SPOTTED-BREASTED LAUGHING-THRUSH.****(179) Stactocichla merulina merulina (Blyth).****THE SPOTTED-BREASTED LAUGHING-THRUSH.**

Stactocichla merulina merulina, Fauna B. I., Birds, 2nd ed. vol. i, p. 186.

The Spotted-breasted Laughing-Thrush is found only in the hills South of the Brahmapootra in Assam, extending thence into the Lushai Hills and Manipur.

It breeds, but not in very great numbers, between 3,000 and 6,000 feet and probably up to 8,000 feet in the Naga Hills, as I saw it above Henema at this elevation. It is a very sedentary bird and pairs may be seen in the same locality year after year, in the Winter with their last year's family and in the Summer after April in pairs only. It is occasionally to be met with in dense bamboo-jungle, more especially if this is just a break in evergreen forest but normally, its habitat is forest, and this the deepest and dampest it can find. The nests are of two descriptions, according to whether it is built in evergreen forest or in bamboo-jungle. In the former case the nest is generally placed in some thick shrub, either in among the lower twigs and branches or right down among the roots. The materials in these nests consist of roots, grass, bamboo and other leaves, more or less mixed with bracken-fronds and moss, whilst the lining is made of moss- and fern-roots, occasionally of fine creeper-stems, tendrils or very fine pliant twig-tips. The nests are rather bulky cups, measuring about 6 inches in diameter by 3 deep. When first made they are fairly compact and well put together but the sites selected are generally so damp that the materials quickly rot and then bear little handling. Nests built in bamboo-jungle are usually placed well inside bamboo-clumps, at other times in the dense masses of small twigs which grow on the outside near the base. The materials used in these latter nests consist principally of bamboo-leaves, these being bound with a few soft weed-stems and long fine roots; inside this are numerous coarse fern-roots and stringy, tough bamboo-roots, well intertwined; inside this again is the true lining, composed of fern- and moss-roots, mostly of the finer description but mixed with stouter ones. These nests are generally rather more compact and also smaller than those built in the damper forest, measuring about $4\frac{1}{2}$ to 5 inches externally across by about 3 inches deep and about $3\frac{1}{2}$ inches by $1\frac{1}{2}$ internally. The base and lower parts of the walls are bulky but the latter taper up to the lips, where they are only a few millimetres thick, though the straggling ends of the loose leaves and other materials make the extreme external measurements much more.

The greater number of birds breed in June and July, though I have taken a few eggs in the end of April and a good many in May.

The number of eggs laid is generally two only, but very often three are laid and I have once taken four.

In colour they are uniform unmarked blue with a tinge of green, in depth of tint just a little warmer than in the eggs of *Garrulax moniligera*. They also differ from that bird's eggs in having the surface more satiny- and less hard china-blue, more like, in fact, the eggs of *Babax*. In shape they are broad ovals, usually slightly pointed at the smaller end.

Fifty eggs average 28.7×21.2 mm.: maxima 31.2×20.8 and 29.3×22.2 mm.; minima 26.8×21.5 and 29.0×19.2 mm.

Incubation period not known but is probably fourteen to fifteen days. Both sexes assist in incubation.

The bird is a close sitter, slinking off the nest just before one thinks she is going to risk being caught. While the nest is being examined they skulk in the jungle near by but return directly one has left. They are very quiet, undemonstrative birds.

Babax lanceolatus.

THE SMALL BABAX.

(180) **Babax lanceolatus lanceolatus** (Verr.).

THE CHINESE SMALL BABAX.

Babax lanceolatus lanceolatus, Fauna B. I., Birds, 2nd ed. vol. i, p. 187.

The Chinese Babax extends from the Kachin Hills and Shan States into Yunnan and Eastern Tibet.

Harington, Grant, Pershouse and Hopwood have all taken this bird's nests in the Bhamo Hills but have recorded very little about them.

Most of the nests were taken at, and round, Sinlum Kaba at an elevation of about 5,500 feet, where, Harington says, "it seems to prefer more or less open hill-sides covered with brambles and grass." Harington considers it a rare bird and only took three nests, but Grant apparently found it less uncommon than did Harington. The nests are described as "cup-shaped, made of coarse grass, twigs and roots lined with finer roots and placed in low bushes about 3' from the ground." Harington in one of his letters to me gives a similar description of the nest but says that in all three of the nests he took at Sinlum there were bits of bracken in with the other materials. All three of these nests were placed in brambles quite close to the ground.

The breeding season seems to be from April to June, most eggs being laid in May. Grant took eggs as early as the 20th April and as late as the 6th June.

The full clutch of eggs seems to be three, rarely four, but sometimes two only.

In colour they are a rather deep Thrush's egg blue,¹ deeper than in the blue eggs of *Garrulax moniligera*, and more nearly approaching those of the Blue-winged Laughing-Thrush. In texture also they are nearest the eggs of this bird. In shape they are rather long ovals and in some cases rather pointed.

Fifteen eggs average 27.3×20.3 mm.: maxima 29.9×21.6 and 29.7×22.2 mm.; minima 20.5×19.5 mm.

Harington's nine eggs, three of which are included in the above, averaged 27.0×22.3 mm.

(181) **Babax lanceolatus woodi** Finn.

THE MOUNT VICTORIA SMALL BABAX.

Babax lanceolatus victoriæ, Fauna B. I., Birds, 2nd ed. vol. i, p. 188.

Babax lanceolatus woodi, ibid. vol. viii, p. 600.

Venning refers to Finn's note on this Babax (Journ. Bomb. Nat. Hist. Soc. vol. xxi, p. 623) but, curiously, does not notice that Finn, as we should expect of so keen an observer, recognizes the differences between the Victoria bird and *lanceolatus* and gives the former a name, *woodi*. Wood's specimen was collected at Kampetel at an elevation of 7,000 feet.

Venning was apparently the first collector to take the eggs of this little-known Babax. He writes (*vide supra*): "One nest found by my wife on the 13th April. The nest was an open cup composed of dead leaves and thick grass stems lined with fine root fibres about two feet above the ground between the stems of a small thorny bush at the head of a little swamp. The interior diameter of the nest was $3\frac{1}{2}$ inches with a depth of $1\frac{1}{2}$ to 2 inches. When found there was only one egg but a second was laid on the 14th, after which the bird was continually on the nest until the 18th, when the bird was shot and the nest taken. The bird was very difficult to see after it had once left the nest and skulked in the thickest bushes."

Shortly after this J. P. Cook took a nest with three eggs on the 1st of June and later Grant took nests in April and May, containing two and three eggs respectively. Both these collectors describe the nests as very similar to that taken by Venning.

Wickham took a nest, of which he writes: "The nest of one which I took just below Mt. Victoria was high up in a tree and not a bit difficult to find." This was in April and the nest contained two blue eggs.

The eggs only differ from those of the preceding bird in averaging rather larger. Of the five nests of which I have records, two contained three eggs and three contained two.

Ten eggs average 28.4×20.7 mm.: maxima 30.5×21.8 mm.; minima 26.6×20.1 and 29.0×20.0 mm.

(182) *Babax waddelli* Dresser.

THE GIANT TIBET BABAX.

Babax waddelli, Fauna B. I., Birds, 2nd ed. vol. i, p. 189.

This fine Babax was discovered during the Tibetan Expedition of 1903-4 on the Gyantse Plateau between 12,000 and 14,000 feet. Walton observes: "When we arrived at Gyantse, on April 11th, I found these birds in two small plantations. They were in troupes of five or six, and kept mainly to the ground, hopping about and turning over leaves etc." He did not, however, obtain nests. Capt. Steen, and after him Capt. Kennedy, and others, found them breeding round Gyantse in some numbers. Steen sent eggs to Dresser, together with the following note:—"This bird nests in most of the Jungles on the Gyantse Plain. The nest was made of small twigs, grass and wool, and lined with fine grass. It was placed near the top of a small sapling and contained three eggs, but sometimes four are laid. I have found nests in old Willow-trees and in low scrub-jungle. The bird is very secretive, runs swiftly or flies low from one cover to another, and is most difficult to shoot. The adult male was found sitting on the nest" (Ibis, 1900, p. 339).

Ludlow also took several nests (Ibis, 1928, p. 56) and writes: "Nest construction begins early in April, and eggs may be obtained in late April and throughout May. The nest is a large ragged structure of twigs, fibres, dried grass and bits of wool, and is generally placed in a thorn bush six or seven feet from the ground. I never found more than three eggs in a clutch, sometimes only two, though Capt. Steen says four are sometimes laid."

I have received many nests and eggs of this species from Steen, Kennedy and others, with good notes, but these add little to the above. In two cases the lining has been composed of wool and goat's hair, though most have been lined with grass only. One nest from Steen was built on a Pollard-willow 10 feet from the ground, some in thorn-bushes between 5 and 7 feet, and others quite low down in scrub and stunted thorn bushes. Two nests measured by me made them out to be roughly about 9 or 9½ inches across the top and, I should think, about 4 to 6 inches deep. These measurements, however, are only approximate, as both nests were considerably damaged in transit. The internal cup may have been, when new, about 6 inches by 3.

I have never had more than three eggs sent to me in a clutch. They are the same beautiful deep, spotless, turquoise-blue as those of the other species but are much bigger. In shape they are decidedly long ovals, in only a few instances the smaller end being slightly pointed.

Twenty-four eggs average 33.1×21.6 mm.: maxima 36.1×21.2 and 33.2×23.0 mm.; minima 31.0×21.3 and 31.4×20.0 mm.

Most of the eggs sent me were taken in May but I have one set taken in June, collected by Col. F. M. Bailey, and one taken on the 12th July by Capt. Kennedy.

Turdoides terricolor.

THE JUNGLE-BABBLER.

(183) *Turdoides terricolor terricolor* Hodgs.

THE BENGAL JUNGLE-BABBLER.

Turdoides terricolor terricolor, Fauna B. I., Birds, 2nd ed. vol. i, p. 191.

The Bengal Jungle-Babbler breeds throughout the greater part of the Plains of Northern India from the United Provinces to Eastern Bengal. It has been recorded from Cachar and from Kamrup in Assam but I never met with it in either district. It occurs in the Eastern parts of Rajputana which are sufficiently well watered, but the bird of the Western and North-Western areas is the same as the Sind race. South of Rajputana it occurs West almost to the Bombay Presidency. The form in the South of Baroda seems nearer to the Southern race than the Sind race, as one would have expected, and the overlapping and intergrading of the three subspecies is very complicated. It is apparently controlled to a great extent by the question of humidity and the consequent vegetable growth. Although typically a plains' bird, the Jungle-Babbler ascends the Himalayas to a considerable elevation, and Stevens records seeing a pair in Sikkim at 5,500 feet.

This Jungle-Babbler breeds principally after the Rains break in June, July and August, but eggs may be taken in most months of the year at odd times. Thus Inglis took a nest of six eggs in December and remarks that the breeding season is "any time from March to September." Harvey took eggs in February and Coltart took others in November, so that not many months are left vacant. They are not forest birds, but with that exception may place their nests anywhere in gardens, orchards, hedges in cultivation, bushes in waste ground or in solitary trees or cacti in either cultivation or waste. The nest is a very rough untidy affair, cup-shaped and built of all sorts of material, such as grass, roots, leaves, straw, an odd cast skin of a snake, a scrap or two of string or cotton and, rarely, a strip of rag. The principal ingredient is roots, Inglis says chiefly the aerial roots of fig-trees, and next in demand come grass and dead leaves. The lining is nearly always of roots or grass-bents but is often very scanty. Hume, however, found that the birds sometimes used hair with which to line their nests. Two nests recorded by him, as taken in the Dun were made entirely of "fine woody tendrils" and lined with fine roots. Inglis, who has probably seen more of this bird's nests,

than any other collector, thinks the favourite sites for them are in trees, generally small ones, about 20 feet from the ground, but they have been taken from 30 feet or more up in big Mangotrees in orchards and, on the other hand, not 2 feet from the ground in thick bushes. Once I have seen a nest placed in thatching-grass growing in a matted tangle with small bushes.

The normal number of eggs in a clutch is four, Hume says three or four, but Inglis and Coltart took many clutches of five or six, and the former took one of seven.

In colour they are a deep turquoise-blue, unspotted and with a fine gloss; in shape they are short ovals not much compressed at the smaller end, yet never quite elliptical, though sometimes nearly so. Hume says that they vary from a pale blue to a blue almost as deep as that of *Garrulax albogularis*, but as a whole I think the eggs are most exceptionally constant in shade, extremes being very rare.

One hundred eggs average 25.2×19.6 mm. : maxima 29.2×19.0 and 25.7×20.8 mm. ; minima 22.8×18.6 and 24.0×18.0 mm.

The gloss on the surface of this bird's egg and the shape serve to distinguish it superficially from the elliptical, non-glossy eggs of the two Cuckoos, *Hierococcyx varius* and *Coccyzus jacobinus*, which habitually cuckold them. At the same time the eggs of the Cuckoo and the foster parent are so like one another that I have repeatedly had clutches of eggs sent to me containing both without the sender being aware of the fact.

Although this is one of the best known and most familiar birds in India, I can find nothing on record about the construction of the nest and which sex is responsible for the work, nor does it seem even to be known whether both sexes do or do not incubate the eggs.

(184) *Turdoides terricolor malabaricus* (Jerdon).

THE SOUTHERN JUNGLE-BABBLER.

Turdoides terricolor malabaricus, Fauna B. I., Birds, 2nd ed. vol. i, p. 192.

The range of this race of Jungle-Babbler is all India South of that of the preceding bird.

Unlike the Bengal subspecies, the present one is far more of a forest bird, though it also breeds in scrub-jungle and, less often, even in small patches of scrub in open waste lands. It is never, at all events so far as any observer has recorded his observations, a frequenter of gardens and orchards in or alongside villages which are so often occupied by the Bengal race for breeding purposes. It also ascends much higher up the many hill-ranges of Southern India, being found in the Nilgiris up to at least 6,000 feet.

The nest is similar to that of *T. t. terricolor* and, like that of that bird, is placed in bushes, small trees and miscellaneous scrub.

Betham took most of his nests in thick bushes, low down, in scrub-jungle. Davison recorded his nests as "generally placed in the middle of some thick thorny bush and cannot be got at without paying the penalty of well-scratched hands." Macpherson, on the contrary, says that "it does not select thorny bushes for building in, its nests being generally found in small trees or bamboo clumps." Finally, A. P. Kinloch "took most nests in bamboo clumps in mixed scrub and bamboo jungle, often at considerable elevations."

The breeding season is most irregular and very prolonged, and Betham thinks they breed twice and possibly several times in the year. Nests with eggs have been found in almost every month but, on the whole, May and June are the two favourites, the same birds often breeding a second time in October to December. In Travancore Bourdillon and Stewart record January to March as the principal breeding months, though they also say that the breeding is very fitful and irregular.

Normally three or four eggs is a full clutch, five being quite exceptional. They cannot be distinguished from others of the species.

Thirty eggs average 25.4×19.7 mm.: maxima 27.0×19.8 and 25.5×20.7 mm.; minima 23.1×19.8 and 24.0×19.0 mm.

(185) *Turdoides terricolor sindianus* Ticehurst.

THE SIND JUNGLE-BABBLER.

Turdoides terricolor sindianus, Fauna B. I., Birds, 2nd ed vol. i, p. 193.

The Sind Jungle-Babbler breeds throughout Sind wherever there are sufficient trees or suitable bushes etc. for the purpose. Thence it extends through North and Eastern Rajputana to Mount Abu, whilst in the North it is found over a great part of the Punjab and all the North-West Province.

Harrington Buckley took many nests of this bird round Karachi and writes: "I am sending you two clutches of the Jungle-Babbler. They are very common here, breeding in cactus hedges, thorn bushes, palms or Babul-trees, but most often in the first named."

Ticehurst (Ibis, 1922, p. 541) writes: "In some of the forests along the Indus it swarms, and elsewhere it is found in proportion to the number of trees; in scrub-jungle I never met with it. Such nests as I have seen were always a fair height from the ground and as often as not towards the end of a horizontal bough of a 'babool,' or else high up in thick milky *Euphorbia* hedges (*E. tirucalli*). All were similar in structure—rather loose-made deepish cups, composed of coarse grass and lined with rootlets."



TURDOIDES TERRICOLOR SINDIANUS.
The Sind Jungle-Babbler.
(Dera Ghazi Khan, April 1903.)

Round Karachi Eates found them breeding in the native gardens, the nests being usually placed in Mango-trees. Rattray obtained several nests at Dehra Gazi Khan, where the favourite site was in palm-trees.

The breeding season seems to be as prolonged and changeable as that of the two preceding races, and eggs have been obtained in every month from March to September.

The eggs are quite typical of the species, three or four being the normal clutch, though Mr. A. E. Jones once took one of seven eggs.

Thirty eggs average 25.0×19.4 mm.: maxima 27.1×20.2 and 24.0×20.9 mm.; minima 21.4×17.5 mm.

(187) *Turdoides striatus striatus* (Swains.).

THE CEYLON BABBLER.

Turdoides griseus striatus, Fauna B. I., Birds, 2nd ed. vol. i, p. 194.

Turdoides striatus striatus, ibid. vol. viii, p. 601.

This Babbler is confined to Ceylon, where it is one of the most common birds over the whole of the Plains. On the North it ascends the hills to some 3,000 feet or, perhaps, higher, whilst in the South, at Uva and elsewhere, it ascends at least to 4,000 feet. It is a bird of scrub and bush country, only occurring casually in forest. On the other hand it frequents gardens, parks and villages and is a most confiding and familiar little bird.

Eggs have been taken in every month of the year but, over most of its range, March, April and May seem to be the favourite breeding months. In Anasigalla Phillips noticed most birds breeding in February, but he took two eggs as late as October in this district.

The nest is described by Wait ('Birds of Ceylon,' p. 43) as "a fairly compact cup made of coarse grass and plant stalks and lined with finer grass. It is usually placed in the fork of a shrub from four to six feet from the ground but I have found it in the branches of a tree as high as 20 feet up." In letters to me he adds that the nests are often placed in boundary hedges between gardens. Sometimes the nests are not nearly so well built. Phillips describes one as a "flimsy, untidy, cup-shaped nest of wiry fern-stems, lined with finer do.; breadth of cup $3\frac{1}{4}$ ", depth 2", placed in a small fork of a rubber tree 30 feet from the ground."

The eggs are the usual glossy blue, typical of the genus, and are also of the usual short, broad oval with obtuse smaller ends. Three is the usual clutch, very rarely four, and sometimes two only.

Fifty eggs average 23.8×18.4 mm.: maxima 26.2×17.6 and 26.0×19.5 mm.; minima 21.8×17.8 and 25.8×17.2 mm.

(186) ***Turdoides striatus polioplocamus*** Oberholser.

THE WHITE-HEADED BABBLER.

Turdoides griseus griseus, Fauna B. I., Birds, 2nd ed. vol. i, p. 193.
Turdoides striatus polioplocamus, ibid. vol. viii, p. 601.

The White-headed Babbler is found over the whole of Southern India North to a line roughly drawn from Ellore through Secunderabad to Belgaum. In the extreme South of Travancore it approaches the preceding subspecies in coloration but specimens received thence are intermediate between the two and, for the present, should be retained under this name.

This Babbler is a bird both of thin forest and scrub-jungle and of cultivated lands, villages and gardens. It is a bird of the Plains but ascends the lower hills to about 2,000 feet or, perhaps, a little more.

As a subspecies it seems to have a more definite breeding season than most other species or subspecies of this genus, the great majority of birds, from Madras to Travancore, breeding from April to June. Stewart took nests in Travancore as early as February but this seems to have been unusually early. A second fairly definite season comes on again in October and November, while Sparrow found them breeding in the latter month in thin jungle round the Trimulgherry cantonments in the Deccan. At the same time eggs may be taken at odd times throughout the year. The nest is just like that of the preceding subspecies and is built in similar sites but, perhaps, rather more constantly low down in bushes rather than higher up in trees. Round Madras Davison took most of his nests in a thick, thorny shrub locally known as "Kurkapulli" (*Garcinia cambogia*), much used in hedges of gardens.

The full clutch is either three or four, equally often the one as the other.

Hume considered the eggs, as a series, to be a darker blue than those of other species of *Turdoides* and *Argya*, but I cannot see that there is any difference.

Sixty eggs average 24.0×18.8 mm. : maxima 26.6×18.5 and 24.5×20.3 mm. ; minima 22.0×19.1 and 23.3×18.0 mm.

Very occasionally in this, as indeed in almost all normally blue eggs, one comes across a clutch which is quite green, generally much paler than usual, showing that the colour is due to a deficiency in the normal blue pigment and a corresponding excess of yellow pigment.

(188) ***Turdus somervillei*** (Sykes).

THE BOMBAY BABBLER.

Turdus somervillei, Fauna B. I., Birds, 2nd ed. vol. i, p. 194.

This Babbler breeds in the lower hills and broken country from near Bombay City to Travancore, breeding in open forest and scrub-jungle but not in gardens or in and around villages.

Mr. Benjamin Aitken states that it is "plentiful on the slopes of Poorundhar Hill, eighteen miles South of Poona. This species is decidedly fond of hilly country. It is common on the two ranges of low hills that run along the East and West shores of Bombay inland of Bombay, but never shows a feather in the gardens and groves on the level ground . . . ; the birds breed in the date-trees." A nest found by Mr. E. Aitken ("Eha") was "in a small spreading tree in level open forest country. The situation was just such a one as *A. malcolmi* generally chooses—the end of a horizontal branch with no other branches underneath it; but it was not so high as those of *A. malcolmi* usually are, for I could reach it from the ground. This was at an elevation of about 2000 ft."

Betham, who took many nests round Khandalla in April and August, describes them as rough untidy cups of twigs, roots and grass of the usual Babbler type, neatly finished off inside with fine grass and roots. Nearly all his nests were placed quite high up in Mango-trees, nearly at the top of small ones. He never found any nest built low down in bushes but Mr. T. R. Bell sent me a clutch of eggs said to have been taken from a cane-brake.

Like the rest of the tribe, they seem to breed at almost any time, but to have two fairly marked seasons, the first in April and May, the second from August to October.

The eggs number three or four, of the usual glossy blue and of the usual broad dumpy oval in shape. Eggs rather paler than normal are more commonly seen among this bird's eggs than in those of any of the Babblers already dealt with.

Thirty-six eggs average 24.2×19.5 mm.: maxima 26.1×19.4 and 25.8×20.8 mm.; minima 22.8×18.3 and 22.9×18.0 mm.

(189) *Turdoides rufescens* (Blyth).

THE CEYLONESE RUFOUS BABBLER.

Turdoides rufescens, Fauna B. I., Birds, 2nd ed. vol. i, p. 195.

The Ceylonese Babbler is found in the damp districts of Ceylon on the West from the foot-hills to the highest levels and is restricted to the most heavily forested areas, where, however, it is said to be also not uncommon in dense bamboo- and scrub-jungle.

Very little is known about its nidification. Legge in his 'Birds of Ceylon' writes: "It breeds in the Western Provinces in March, April and May and constructs a nest similar to the last, of grass and small twigs, mixed, perhaps, with a few leaves, and placed among creepers surrounding the trunks of trees, or in a low fork of a tree. It conceals its habitation, according to Layard, with great care, and I am aware myself that few nests have been found. It lays two or three eggs of a deep greenish blue and pointed ovals in shape—two which were taken by Mr. MacVicar at Belgodde measuring 0.95×0.75 inch and 0.92×0.74 inch."

Two eggs taken for me by Mr. W. A. T. Kellow are just like those of *Turdoides s. striatus* and measure 24.2×18.1 and 24.0×17.8 mm. I have also two eggs which I bought from Lazarus, in Slave Island, and saw the skin of one of the parents. These measure 24.3×18.0 and 25.1×19.0 mm. and are probably quite correct. The nest, which had, unfortunately, been thrown away, was said to have been made of twigs, coarse grass and roots, lined with the latter.

(191) *Argya earlii* (Blyth).

THE STRIATED BABBLER.

Argya earlii, Fauna B. I., Birds, 2nd ed. vol. i, p. 197.

This is the most widely distributed of all the Babblers of the genera *Turdoides* and *Argya*, breeding throughout Sind, the North of India, at the base of the Himalayas wherever there is suitable country, through Eastern Bengal and Assam and down Western Burma to Pegu. It is common in Gurdaspur and other suitable places in the Central Provinces. In Sind Ticehurst gives Jhangshahi, 70 miles East of Karachi, as the Western limit of this Babbler.

The birds breed almost entirely in grass fields, rush- and reed-covered swamps and in elephant-grass, water seeming to be a necessity, few nests being built at any great distance from it, and many actually in the swamps. Now and then a nest may be built in a bush or small tree standing in dry grass-land but such are quite exceptional. Hume's description of the nest is excellent and I quote it in full :—

"They lay twice during the year, between the latter end of March and early part of September, building a neat, compact and rather massive cup-shaped nest, either between the close-growing reeds, to three or more of which it is firmly bound, or in some little bush or shrub, more or less surrounded by high reed-grass. The broad leaves and stringy roots of the reeds, common grass and grass-roots are the materials of which it generally constructs its nest, which varies much in size, according to the situation and the fineness of the material used. I have seen them composed almost entirely of reed-leaves, fully seven inches in diameter and five in height, and again built entirely of fine grass-stems and not more than 4 inches across and 3 inches in height. When semi-suspended between reeds, they are always smaller and more compact, while when placed in a fork of a small bush they are larger and more straggling. The cavity (always neatly finished off, but very rarely regularly lined, and then only with very fine grass-stems or roots) is usually about 3 inches in diameter by 2 inches in-depth."

Col. G. F. L. Marshall gives a similar description of nests found by him during March in the Saharanpur and Sub-Siwalik Districts.

and remarks on their partiality for water, nearly all those found in the last-mentioned district being close to the canal.

In Ferozepore, Punjab, they are very common and Betham observed them breeding in great numbers in the "Sarkuri" grass fields on the banks of the Sutlej during March and April.

This Babbler is even more constantly gregarious than its relations, consorting together in small parties when breeding as well as at other times, and sometimes several nests may be found within a very small area.

Hopwood and Mackenzie obtained nests in Pegu in July, where they were breeding in extensive beds of elephant-grass in swampy land. In Assam Stevens ascertained that they were nesting in reed-beds and grass-lands on the banks of the Diju and took one nest with three eggs on the 17th May.

The eggs are of the usual blue but, perhaps, a little paler than those of the other species of the genus. They are, however, similar in shape and have the same intense gloss.

Sixty eggs average 22.8×17.6 mm. : maxima 26.0×19.7 mm. ; minima 19.7×16.9 and 25.1×16.1 mm.

It is difficult to define the breeding season of the striated Babbler. Doig and Barnes give an "all in" season lasting from March to October, which suffices, roughly, for the whole of its range, but in different areas the birds select different times according to the food-supply available. Thus in the immense stretches of grass in Eastern Bengal and Assam they seem to breed from October to December, after the cessation of the rains. In the Surrma Valley, however, the districts of Assam adjoining those of Eastern Bengal, they lay between March and June *before* the Rains start.

Argya caudata.

THE COMMON BABBLER.

(192) **Argya caudata caudata** (Dumont).

THE COMMON BABBLER.

Argya caudata caudata, Fauna B. I., Birds, 2nd ed. vol. i, p. 198.

This is another Babbler which breeds over a very great area. With the exception, perhaps, of the hills in the North and East of Sind (where the Afghan Babbler, *A. c. huttoni*, may take its place) the N.W. Punjab, Trans-Indus, the low hills leading into Kashmir and Baluchistan (occupied by the Punjab Babbler, *A. c. eclipses*), it extends over the whole of Northern India as far East as Calcutta. South it is found down to the Palni Hills and also occurs in Rameswaram Island and in the Laccadives. It does not breed in Assam or in the districts of Bengal East of the Bay, nor did I ever meet with it in Mymensingh or Dacca.

It affects open grass-lands, cultivation, scrub-land round villages and even gardens and orchards. It does not breed in very wet country or in swamps like *A. earlii* nor, on the other hand, does it affect heavy forest. It is a bird of low levels and never ascends the hills to any height, though it does occur in some of the plateau-land of Central India up to some 1,500 or even 2,000 feet.

The nest is a typical Babbler's nest, a cup constructed of grass and roots, smaller, neater and more compactly put together than most nests of either this genus or of *Turdoides*. The grass and roots, though generally forming the major portion of material used, is often mixed with fine twigs, strips of bamboo-leaves, a dead leaf or two or even a soft weed-stem or tendril. The lining is practically always of fine grass or fine grass and roots but Brooks also mentions hair as one of the materials seen by him. Adams also says that a nest found by him in Oudh had a ground-work composed of twigs and stems of creepers interlaced.

The nests are invariably placed low down in bushes, generally between 2 and 4 feet from the ground but, whilst many are placed even lower than this, very few nests will be found as much as 5 feet up. Occasionally, as described by Captain Butler, they may be built in thick tussocks of grass.

A very favourite situation for their nests near the Sambhur Lake is said by Adams to be in the hedges of Prickly Pear and, in these, it is possible the nests may sometimes be as much as six feet from the ground.

Nests with eggs have been taken in every month of the year and these Babblers must breed twice or often three times within the twelve months. On the whole, June, after the Rains break, is probably the favourite month in Northern India whilst in Southern India March to May seems to constitute a regular breeding season, with July to October a second period in which almost as many birds breed, possibly for the second time.

Hume gives three as the normal full clutch but most of my own correspondents—Field in Gya and Ferozepore, Lindsay Smith in the Eastern Punjab, C. G. Nurse in Central India, Betham, Osmaston and others—all agree in saying that four eggs are found more often than three. Five seems to be quite exceptional and I have only one such clutch, taken by Col. K. Buchanan in the Punjab.

The eggs are of the usual blue and vary little in depth, though they are proportionately longer ovals in shape than are any of those Babblers of the genus *Turdoides* already dealt with.

One hundred and eighty eggs average 21.2×16.1 mm. : maxima 24.0×17.3 and 22.4×17.7 mm. ; minima 19.0×15.3 and 19.2×14.8 mm.

None of the Babblers of the genera *Argya* and *Turdoides* seem to be very close sitters and all slip off their nests before an intruder gets close to them. They are, however, very noisy and very fussy,

and soon give away the sites of their nests if watched. Even during the breeding season the birds not actually engaged in sitting meet and form little parties, hunting, feeding—and generally quarrelling—in company.

So far as I have been able to ascertain, incubation takes thirteen to fifteen days for the different Babblers' eggs.

Turdoides terricolor eggs laid on the 3rd and 6th July hatched on the 20th and 21st. Two nests of *Argya caudata*, each with four eggs, hatched on the thirteenth day after the laying of last egg. In none of these cases, unfortunately, have I any notes as to when the parent bird really began to incubate, *i. e.*, on the laying of the first egg or on the laying of the last. I have, however, seen so many nests of the "Seven Sisters" tribe in which the hen never seemed to commence incubation until the last egg had been laid, that it may be taken for granted that this is the usual custom.

(192 a) *Argya caudata eclipes* Hume.

THE BALUCHISTAN BABBLER.

Argya caudata caudata, Fauna B. I., Birds, 2nd ed. vol. i, p. 198 (part.).

Argya caudata eclipes, *ibid.* vol. viii, p. 60.

Ticehurst, who shows that this race should be recognized (Bull. B. O. C. vol. xlv, p. 66, 1926), gives it the following distribution and, as it is a resident bird, it will probably be found breeding throughout this area:—"Hume's type came from Peshawar and he says that it only occurs in the N.W. Punjab, Trans-Indus, and low hills and valleys leading into Cashmere. This is perfectly correct. I have examined the type from Peshawar and others from the Cashmere foot-hills, Attock and Rawal Pindi, and one from Fort Sandeman in Baluchistan." We may thus roughly summarize its known breeding area as the Punjab-Trans-Indus, Afghan and Baluchistan Frontier and foot-hills of Kashmir.

Captain C. R. S. Pitman found this bird breeding very commonly from the end of April to the end of May round about Dehra Ismail Khan. The nests he describes as "cups of dried grass and roots, very untidy and unfinished looking, lined with finer grass and built either in low thorny bushes or in cactus hedges." Osmaston also obtained many nests during March in the Topi Park at Rawalpindi. Here they were placing their nests in low shrubs such as *Carissa* and *Karounda* bushes.

The eggs, which number two to four, are just like those of the Common Babbler, and call for no remark.

Thirty eggs average 21.4×16.3 mm.: maxima 23.5×17.2 mm.; minima 20.0×16.0 and 21.0×15.2 mm.

(194) *Argya gularis* (Blyth).

THE WHITE-THROATED BABBLER.

Argya gularis, Fauna B. I., Birds, 2nd ed. vol. i, p. 199.

The White-throated Babbler is one of the most common birds in the dry zone of Central Burma, extending North into the Lower Chindwin, whilst in the South Oates records it from Prome, where, however, it must be rare, as neither Hopwood, Mackenzie nor later observers have obtained it.

So far as we know at present, this Babbler breeds from the end of April to the middle of June, frequenting open and cultivated country and placing its nest in scrub round villages, in grass and bush country broken down and more or less cropped short by the village herds, or in open bamboo-jungle. I have no record of it breeding inside a garden, although it is such a familiar bird, constantly haunting gardens and the interior of villages when feeding. Cook describes the nests he took near Myingyan, Upper Burma, as follows:—"These Babblers are common enough and the nests easy to find, rough cups of twigs, often thorny ones, coarse roots and grass lined with finer roots and grass, and generally placed low down in scrub. The half-cleared-off scrub and undergrowth near villages is a favourite resort. I have never taken more than three eggs in a clutch, though these were often hard set, but I know they do sometimes lay four."

Mackenzie and Hopwood endorse the above description and both lay stress on thorny twigs being frequently used in the body of the nest. Both these observers, however, consider four to be the normal clutch, whilst Mackenzie once took a clutch of five.

The eggs are quite typical of the genus but, in a large series, it is noticeable that the eggs of this species are, on an average, decidedly paler than those of the Common Babbler.

One hundred eggs, including 61 measured by J. M. D. Mackenzie, average 22.5×17.1 mm. : maxima 25.1×18.1 and 23.0×19.0 mm. ; minima 20.6×17.0 and 22.0×16.0 mm.

(195) *Argya malcolmi* (Sykes).

THE LARGE GREY BABBLER.

Argya malcolmi, Fauna B. I., Birds, 2nd ed. vol. i, p. 200.

Hume records this Babbler as breeding "throughout the central portions of both the Peninsula and Continent of India from the Nilgiris to the Dhoon. It does not extend Westwards to Sind or the North-West Punjab or Eastwards far into Bengal proper." Bourdillon obtained several nests in Travancore where, however, he says it is not common. I have also received nests and eggs from Chota Nagpore in Bengal, but it does not come into Eastern

Bengal so far as the equally dry district of Santhal Parganas. It is common in the South-East Punjab, becoming more rare to the North-West and, probably, never crossing the Indus.

Over the whole of its range this is one of the most familiar of breeding birds, frequenting gardens, road-sides, the surroundings, and often the interior, of villages; at other times nesting in scrub and thin bush-jungle or in single trees standing in cultivation or waste land. In gardens and around villages their nests are often placed quite low down in bushes but at other times they are built higher up in small trees. Marshall, writing of Cawnpore, says "the nest is almost always in a 'keekur' tree in a fork about half way up and near the end of a branch." Bingham says that they generally place their nests at no great height in Babool-trees, but that twice he took them 30 feet up in dense Mango-trees, whilst Butler says they prefer thorny trees such as Mimosa etc.

They do not ascend the hills to any great height, possibly only up to about 4,000 feet.

The nest is typical of those of this group of birds—untidy cups made of grass, small twigs and roots, either with no lining or with a very slight one of rather finer roots and grass-bents. Hume calls the nest a loosely woven one but generally "neat"; Miss Cockburn, however, says that the nests "are built of a few twigs and roots, very loosely put together, and so few even of these as hardly to keep the eggs from falling through." The only other collector who mentions anything else of special interest about the nest is Bingham, who found "the soft down of the Madi (*Catartops hamiltonii*) incorporated into the lining of the nest."

The breeding season appears to commence on the 1st January and to finish on the 31st December, for Barnes says that he has seen nests with eggs in every month of the year. In some parts of India they have, however, a preference for certain months over others; thus in the Nilgiris and Travancore most eggs are laid in March and April, whilst in Poona the great majority are laid in October and November.

The eggs call for no remark except that they are darker in colour, when considered as a series, than those of the other *Argyas*; otherwise they are the same both in shape and texture.

One hundred eggs average 25.2×19.4 mm. : maxima 28.0×19.4 and 26.5×21.6 mm. ; minima 22.3×18.6 and 24.3×18.5 mm.

(196) *Argya subrufa* (Jerdon).

THE RUFOUS BABBLER.

Argya subrufa, Fauna B. I., Birds, 2nd ed. vol. i, p. 201.

There is very little on record about the breeding of this Babbler, though it is a common resident bird in the South-West of India from Travancore nearly to Bombay City.

In Hume's 'Nests and Eggs' there is only an isolated note describing the nest and, as this description agrees well with that of Bourdillon, I quote it in full :—

"The nest is a deep massive cup, placed in the fork of twigs, coarsely and roughly but still strongly built. The body of the nest is chiefly composed of leaves, some of which must have been green when used. Outside, the leaves are held in position by blades of grass, creepers, and stems of herbaceous plants, carelessly and roughly wound about the exterior. The cavity is rather more neatly lined with tolerably fine grass-roots. Exteriorly the nest is about 7 inches in height by about 5 inches in diameter. The cavity is about $3\frac{1}{2}$ inches deep by 3 in diameter."

In Travancore, according to Bourdillon, it is fairly common in forest but is especially fond of the dense secondary growth which springs up so quickly in abandoned coffee clearings, placing its nest, a rough bulky cup of leaves and grass, in bushes and small trees. The usual nesting season is March and April but he also took one clutch of eggs on the 23rd February. From Kanara I have one clutch of four eggs taken on the 20th May and two, of four each, from Khandalla, which were taken on the 11th August and 2nd November.

The normal eggs of this species are much the same as those of *Argya malcolmi* and nearly as dark, but I have two very pale clutches taken by Bourdillon which are almost a skim-milk blue in colour, whilst in shape they are rather long pointed ovals. They were taken in the same place at an interval of six weeks and are probably the product of the same pair of birds.

Seventeen eggs average 25.0×18.1 mm.: maxima 27.1×20.0 mm.; minima 23.0×18.5 and 24.5×16.2 mm.

(197) *Argya longirostris* (Hodgs.).

THE SLENDER-BILLED BABBLER.

Argya longirostris, Fauna B. I., Birds, 2nd ed. vol. i, p. 202.

I found this Babbler breeding in small numbers on the grass plateau land in the Khasia Hills between 3,000 and 4,000 feet; with this exception no one seems to have taken its nest.

It occurs, and is doubtless a resident breeder, from the lower hills of the Nepal Terai, Bhutan and Buxa Duars, into Assam both North and South of the Brahmapootra.

The nests taken by myself or by my collectors, in the latter cases the parent birds being shot off the nest, are all alike and were placed in exactly the same kind of position—small, scrubby bushes growing in a sea of grass about four feet high. A single nest taken by myself in Panitola, in the Lakhimpur district of Assam, was in a Tea-bush, growing in deserted Tea cultivation overrun with grass and weeds and adjoining extensive grass-lands.

The nests, for Babblers, were quite neat and well put together. In shape they were deep cups, the measurements of one being internally about $3\cdot5 \times 2\cdot4$ inches and externally about 4·2 inches deep by 3·2 across the top. The materials consist of leaves, scraps of grass-blades, stems of plants and a few soft elastic twigs, the whole being bound together with fibres, roots of ferns and two or three long pliant weed-stems, with a lining of fine dark grass-stems and a few fern-roots. In some nests the strips of grass-blades formed three-quarters of the whole nest; in others the grass was less in proportion. The eggs number three to five and are just like the eggs of *Argya caudata*, but I have one clutch and a single egg which are very pale blue, exactly the same in tint as the pale eggs described of *Argya subrufa* taken by Bourdillon.

Twenty eggs average $21\cdot5 \times 16\cdot7$ mm. : maxima $23\cdot0 \times 18\cdot3$ mm. ; minima $19\cdot8 \times 16\cdot0$ and $21\cdot1 \times 15\cdot2$ mm.

All my nests with eggs were taken in May and June.

The birds sat close, only leaving the nest when I was within a few feet of it and, after leaving it, they slunk quietly into the grass and were not nearly so noisy or demonstrative as are most Babblers of this genus. They do not seem to be gregarious in the breeding season.

(198) *Acanthoptila nipalensis* Hodgs.

THE SPINY BABBLER.

Acanthoptila nipalensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 204.

The Spiny Babbler is only known to inhabit Nepal and Sikkim. In the latter it must be very rare, as Stevens has never come across it.

Nothing more has been discovered about this bird's nidification since Hume recorded ('Nests and Eggs,' p. 269, 1873), from Hodgson's note, that "this species builds, in a fork of a tree, a very loose, shallow grass nest. One is recorded to have measured 4·87 in diameter and 1·75 in height externally, and internally 3·37 in diameter and an inch in depth. The eggs are verditer blue and are figured as 1·1 by 0·65."

Pomatorhinus schisticeps.

THE SLATY-HEADED SCIMITAR-BABBLER.

(199) *Pomatorhinus schisticeps schisticeps* Hodgs.

THE HIMALAYAN SLATY-HEADED SCIMITAR-BABBLER.

Pomatorhinus schisticeps schisticeps, Fauna B. I., Birds, 2nd ed. vol. i, p. 206.

The typical form of Slaty-headed Scimitar-Babbler is found all along the lower hills at the base of the Himalayas from Nepal to Eastern Assam, descending to, but apparently not breeding in,

the adjacent plains. Stevens says that it is confined to the foot-hills, by which he means anything under 3,800 feet, at which height Shaw obtained it near Mangpu.

Mandelli and Gammie both found nests of this species in the Darjiling District. The nests are described as saucer-shaped, not domed, rather shallow, measuring from 5·5 to 6·5 inches in diameter by between 2·5 and 3 inches in depth, with an egg-cavity of, roughly, 3·5 by 1·5 inches. They were built of grass, leaves and bits of fern-fronds lined with finer grass, in some cases this being very fine. A nest found by Gammie was actually on the ground among low jungle and, in this instance also, the nest was lined "with some soft fibrous material obtained from the bark of some tree."

Mandelli's nests were placed "on or near the ground in brushwood or grass."

The breeding season lasts from the first week in April to the last week in June.

The full clutch of eggs numbers three or four. They are, as are all other eggs of this genus, pure white. In texture they are fine and close but decidedly thin and fragile in proportion to their size. They have a distinct gloss but this is more of a satiny sheen rather than the hard china gloss of Woodpeckers' eggs and, in some lights, the gloss or sheen is hardly perceptible. In shape they are rather long ovals, distinctly compressed at the smaller end, though the small end itself is generally obtuse and only rarely really pointed.

Nine eggs average $24\cdot9 \times 19\cdot0$ mm.

(200) *Pomatorhinus schisticeps cryptanthus* Hartert.

THE SURRMA VALLEY SLATY-HEADED SCIMITAR-BABBLER.

Pomatorhinus schisticeps cryptanthus, Fauna B. I., Birds, 2nd ed. vol. i, p. 207.

This Scimitar-Babbler breeds throughout the hills of the Surrma Valley and South of the Brahmapootra River from the Mikir Hills to North Lakhimpur. Its principal breeding range is between 2,000 and 4,000 feet but it ascends certainly 1,000 feet higher, and probably up to 6,000 in the Naga Hills. In Lakhimpur, on the contrary, it is found right down to the plains, which are here about 700 feet above sea-level.

Its favourite haunts are bamboo, or bamboo- and grass-jungle, thin scrub-jungle or the dense secondary growth which grows in two or three years in abandoned cultivation, or Tea clearings. It is also occasionally found in quite deep evergreen forest, but such forest certainly does not form its normal habitat.

This Scimitar-Babbler is said to sometimes build an ordinary cup-shaped nest but I have never seen such, though I have examined

a great many. Most nests are shaped like a Rugby football lying on its side with the entrance at the smaller end. Less often it is like an egg standing on its broader end with the small end sliced off at an angle. The materials used are bamboo-leaves and grass-blades very loosely interlaced with a scanty lining of roots, smaller blades of grasses and, perhaps, a few bents. At the same time the materials vary greatly and, though about three out of four are built more or less completely of the above articles, others may be built of leaves, roots, a few creepers or tendrils and strips of fibre and bark. I have seen one nest made almost entirely of dead bracken-fronds lined with bracken-roots; another very extraordinary nest was constructed outwardly of green bracken, the tops of the bracken-leaves drawn together and just leaving room for an entrance. Very rarely even twigs are used, but these would not appear in one nest in ten. The materials, whatever they may be, are very carelessly put together and the nest will never bear removal or much handling. The position chosen in which to place the nest varies almost as much as the nest itself. The site most often selected is undoubtedly either in a bamboo-clump quite low down or else at its base, in among the mass of debris which almost conceals it. One nest I found was placed on the very top of a bush about four feet high, on a platform of tangled creepers, looking just like a wind-gathered mass of bamboo-leaves and grasses. So unlike a nest was it as I looked down on it from higher up the hill that I would have passed on without further inspection had not the bird left it as I was looking. Sometimes it is placed low down in clumps of grass; often in low thick bushes between two and four feet from the ground and, occasionally, on a bank at the foot of some forest-tree.

The eggs number four in a full clutch but I have seen one or two-fives and many threes, showing by their state of incubation that no more would have been laid. They cannot, of course, be distinguished from those of the preceding subspecies.

One hundred eggs average 26.6×19.2 mm. : maxima 28.2×19.3 and 26.8×20.0 mm. ; minima 24.4×19.0 and 26.1×17.9 mm.

The birds lay in April, May and June but, in the foot-hills and the plains about Margherita, a few individuals lay every year as early as the last week in March.

They sit fairly close but never risk handling and, when disturbed, tumble out of their nests to the ground and at once seek refuge in the undergrowth, proceeding by long hops and looking more like rats than birds. They never go far and, within a very few moments of being disturbed, their low "hoot-hoot" will be heard not far from the nest. Both birds take part in incubation, for we have repeatedly caught both sexes on the nest; both, also, help in the construction of the nest. This is a lengthy job, though the result is so poor, and the builders seem to work at it only for an hour or so in the evenings and mornings. From start to finish the making of the nest probably averages a good ten days.

(201) *Pomatorhinus schisticeps mearsi* Ogilvie-Grant.

THE BURMESE SLATY-HEADED SCIMITAR-BABBLER.

Pomatorhinus schisticeps mearsi, Fauna B. I., Birds, 2nd ed. vol. i, p. 207.

This race of Slaty-headed Scimitar-Babbler replaces the preceding subspecies in Western Burma from the Chin Hills to the South of the Arrakan Yomas. Eastwards it occurs in the Trans-Chindwin and has been obtained breeding both at Kindat and Kampat, but its definite Eastern limit is not known.

Mackenzie and Hopwood describe its nidification as exactly like that of *P. s. cryptanthus*. The nest is always domed and is invariably placed on the ground or on some pile of rubbish or in a clump of bamboo—well inside it.

The eggs number two or three but very few nests have been taken, and the full clutch may sometimes be four.

Ten eggs average 27.7×19.2 mm. : maxima 29.2×19.0 and 26.0×29.1 mm. ; minima 24.2×18.1 mm.

(202) *Pomatorhinus schisticeps pinwilli* Sharpe.

THE NORTH-WEST SLATY-HEADED SCIMITAR-BABBLER.

Pomatorhinus schisticeps pinwilli, Fauna B. I., Birds, 2nd ed. vol. i, p. 208.

The North-Western race of Scimitar-Babbler breeds from the Western Nepal Terai through the sub-hills of Dehra Dun and Naini Tal, but I cannot trace their Western limits.

Whymper found their nests in Naini Tal at about 4,000 feet elevation and Osmaston obtained them in the Dun at 2,000 and 2,300 feet.

The nests and eggs are said to be exactly like those of the other races of Scimitar-Babblers, the former being domed and nearly always placed on banks in wooded ravines, sometimes on a bank beside some forest path.

The breeding season is probably a long one and some birds may breed twice, as nests have been taken in April and again in July and August. The eggs number three or four.

Twelve eggs average 25.4×19.5 mm. : maxima 26.9×19.6 and 26.8×20.0 mm. ; minima 24.3×19.3 and 24.6×19.2 mm.

It is, of course, quite unsafe to generalize from so small a series of eggs but, so far as they go, they seem to be rather broader ovals than those of the other races.

(203) *Pomatorhinus nuchalis* Tweed.

THE SHAN STATES SCIMITAR-BABBLER.

Pomatorhinus nuchalis, Fauna B. I., Birds, 2nd ed. vol. i, p. 208.

This Scimitar-Babbler inhabits Eastern Burma, East of the Sittaung, from Papun in the South to the North of the Northern Shan States. Cook found it breeding in Thayetmyo, whilst Hopwood and Mackenzie both observed it at Prome. The earliest record of its breeding is that of Harington in the South Shan States. He writes (Journ. Bomb. Nat. Hist. Soc. vol. xv, p. 519, 1904): "On the 6th May, 1902, at Loilem, South Shan States, I found a Scimitar-Babbler's nest containing three eggs. The bird unfortunately escaped and deserted the nest, not coming back the next day. The nest was cup-shaped, composed of grass and leaf-stems and placed in a bush about two feet from the ground."

In 1911 Mr. S. M. Robinson found the nest of this Babbler at Thandaung "where there is a high cutting. The hill above is covered with heavy bamboo jungle, and the dead leaves falling have collected on the ledges of rock. The nest was cup-shaped, almost covered with the dead leaves, and was $3\frac{3}{4}$ " deep by $3\frac{5}{8}$ " in diameter (inside). It consisted of dead bamboo leaves loosely rolled round the cup and strapped round with narrow leaves of a coarse grass between the layers of the bamboo leaves to keep them together. Inside dry grass-bents and finished with fine grass. The eggs were three."

Unlike these cup-shaped nests, which I think must be exceptional, are others, all dome-shaped, found by Cook (*ibid.* vol. xxi, p. 659), who records that "the nest was placed in a bamboo clump and about 3" from the ground and egg-shaped in form, the aperture being much closer to the top than to the bottom; the lower part of the nest was a fairly deep cup. It was carefully lined inside with dried grass and packed exteriorly with dried bamboo leaves, so that the nest on first sight looked like a collection of leaves.

"I think the 30th October an unusual time of year for any of the Babblers to be laying."

Mackenzie's nest was, like so many Scimitar-Babblers' nests found by myself, a domed affair shaped like a large egg lying on its side, with the entrance at the smaller end. It was placed low down in a bamboo-clump, which seems to be the favourite nesting-site for this bird. All other accounts also agree in describing this bird's haunts as dense bamboo-jungle or the thick secondary growth in deserted cultivation. Less often it is found in thick grass and scrub.

The very few eggs I have been able to measure vary between 24.2×18.8 and 23.0×17.3 mm.; but Mackenzie measured eggs, broken and not kept, as running from 23.5×17.5 to 26.75×18.5 mm.

Including all his and Robinson's eggs, which latter I have not seen, the average of twelve eggs is 24.2×17.8 mm.

Nests have been taken in April (Robinson), May (Harington), July (Mackenzie) and October (Cook), so it is difficult to say what is really the breeding season; but in addition to the nests taken by himself, Mackenzie had others brought to him by reliable Burmans in September and October. It looks rather as if this bird bred twice, first in April and May and then a second time in September and October.

Pomatorhinus olivaceus.

THE WHITE-FLANKED SCIMITAR-BABBLER.

(204) Pomatorhinus olivaceus olivaceus Blyth.

THE TENASSERIM WHITE-FLANKED SCIMITAR-BABBLER.

Pomatorhinus olivaceus olivaceus, Fauna B. I., Birds, 2nd ed. vol. i, p. 209.

In the 'Fauna of India,' *supra*, I have given the range of this Babbler as from Tenasserim South to the Malay Peninsula. Robinson and Kloss, however, accept Hartert's subspecies *fastidiosus*, which, with the material available, I was unable to separate from true *olivaceus*; moreover, Blyth distinctly says that his *olivaceus* comes from the Province of Yé in Tenasserim, so that *fastidiosus* is merely a synonym of *olivaceus* and the Southern bird, if separable, would require a new name.

Hopwood observed this Babbler breeding in Tavoy and obtained two nests, one containing three and one four eggs, on the 7th and 3rd of March respectively.

The nests he describes as "very neat domed nests of bamboo leaves, neatly lined with grass. "One of these was placed in a crevice among the roots of a tree, the other on the ground under a clump of bamboos. Both were found in a *Ponzo*, or deserted cultivation, thickly overgrown with scrub- and bamboo-jungle, together with here and there a few odd trees."

Davison also obtained the nest at Pakchan and gives a fuller description of it:—"It was placed on the ground at the foot of a small screw pine, growing in thick bamboo jungle; it was a large globular structure composed externally of dry bamboo leaves, and well secreted by the mass of dried bamboo leaves that surrounded it, and if I had not seen the bird leave it, it would most undoubtedly have remained undiscovered. Externally it was about a foot in length by about a foot in height, but it was impossible to take any accurate measurement, as the nest had really no marked external definition. Internally was a lining about half an inch thick, composed of thin strips of dried bark, fibres, etc. The entrance was to one side, circular, and measuring about 2.5 in diameter; the egg cavity measured about 4 inches deep by about 3 in height.

"In the nest were three pure-white ovato-pyriform eggs."

The seven eggs taken by Hopwood average 24.9×18.9 mm.: maxima 26.1×19.4 mm.; minima 23.8×18.9 and 25.6×18.0 mm.

(205) *Pomatorhinus olivaceus ripponi* Harington.

THE SHAN STATES WHITE-FLANKED SCIMITAR-BABBLER.

Pomatorhinus olivaceus ripponi, Fauna B. I., Birds, 2nd ed. vol. i, p. 210.

This Scimitar-Babbler breeds in the Shan States, Kachin Hills South to Karenni and, probably, still further South between 2,000 and 5,000 feet.

Its nest was first discovered by Bingham many years ago in the Thoungyeen Valley on the 4th March. He writes: "Having to go over the ground along the Southern boundary of the Meplay Reserve, I had to cut my way through dense bamboo. As I was slowly progressing along, bent almost double, out of a little hollow at my feet a bird flew with a suddenness that nearly knocked me down. I looked into the hollow, and there under the ledge of the sheltering bank was a nest of dry bamboo leaves, lined with strips of the same, shredded fine. It was cup-shaped, loosely made, about $1\frac{1}{2}$ inches in diameter and the same in depth, containing three pure white eggs." The measurements must refer to the inside of the cup only. Later observers write of the nest as domed. Thus Cook (Journ. Bomb. Nat. Hist. Soc. vol. xxii, p. 262, 1913): "Common in the grass land. I found two nests, the first on the 7th April containing three eggs on the point of hatching; the second nest, also with three eggs, but quite fresh, I found on the 23rd. Both nests were globular in shape and composed of coarse grass loosely woven. The former was placed on sloping ground between the stems of a clump of tall grass; the other nest was placed on flat ground, but amongst this grass. The nest was so moulded into a little depression that the top of the nest was but little above the surrounding ground-level. The eggs were pure white."

Hopwood and Mackenzie found nests quite similar to the above at Maymyio on the 3rd and 9th May, both on the ground, and the year before, 1916, Osmaston also obtained a nest on the ground but in the middle of October, so this bird possibly has a double season, like many others of the genus. Wickham in the Southern Shan States took a nest on the 27th April which had been built on the top of a Pine-apple. This too was domed and made of bamboo-leaves.

They lay from two to four eggs, though three is probably the normal full clutch.

Eleven eggs average 24.9×17.9 mm.: maxima 25.8×18.4 and 25.5×19.0 mm.; minima 24.0×17.2 and 24.6×17.1 mm.

Four eggs taken by Mackenzie and not included in the above

are very small, measuring on an average only 21.25×15.5 mm., while the smallest is only 19.25×14.0 mm.

The eggs are, of course, pure white, like all other Scimitar-Babblers', and are of the usual shape and texture.

Pomatorhinus horsfieldi.

THE BROWN-FLANKED SCIMITAR-BABBLER.

(206) Pomatorhinus horsfieldi horsfieldi Sykes.

THE DECCAN BROWN-FLANKED SCIMITAR-BABBLER.

Pomatorhinus horsfieldi horsfieldi, Fauna B. I., Birds, 2nd ed. vol. i, p. 210.

The typical form of *horsfieldi* is resident and breeds through a great part of the Northern Bombay Presidency, Mahableswar, Khandalla, Kanara, Mysore, Madras and the Deccan in the plains, broken country, low hills and plateaus up to about 2,000 feet.

There is very little on record about the breeding of true *P. h. horsfieldi*, nearly all the notes in Hume's 'Nests and Eggs' referring to *P. h. travancoriensis*.

Messrs. Davidson and Wenden remark that it is very common in the Deccan, "where Davison got a nest with two eggs in March." I have also in my collection two eggs taken by Davidson at Kanara on the 20th May, and two taken by him in Nassic on the 27th February.

In Satara Betham records that they are "apparently common but not often seen and the nest is well concealed in deep forest. It is domed and made of skeleton leaves, a base being formed on which it rests. It is neatly lined and finished off but its outward appearance is like a mass of leaves and was only found because the bird left it at my feet."

Twenty-four eggs average 25.7×19.4 mm. : maxima 27.4×19.7 and 25.8×20.1 mm. ; minima 24.4×18.5 mm.

(207) Pomatorhinus horsfieldi obscurus Hume.

THE MOUNT ABU BROWN-FLANKED SCIMITAR-BABBLER.

Pomatorhinus horsfieldi obscurus, Fauna B. I., Birds, 2nd ed. vol. i, p. 211.

So far this Babbler has only been recorded from Mount Abu and Seoni, and how far it extends in Rajputana is not known.

Two clutches of eggs in my collection taken on Mount Abu are the usual white eggs but are both undoubtedly abnormally small. One clutch contains three, the other two eggs, and the average of the five eggs is only 22.9×17.3 mm. The finder of these eggs, unfortunately, left no details about the nest or site.

(208) *Pomatorhinus horsfieldi travancoriensis* Harington.

THE SOUTHERN BROWN-FLANKED SCIMITAR-BABBLER.

Pomatorhinus horsfieldi travancoriensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 211.

This bird has the widest range of all the Scimitar-Babblers of the *horsfieldi* group and is found all over Southern India South of the range of the other subspecies already dealt with. It is, however, a hill form and will not be obtained except on hills and mountains from 2,000 up to 8,000 feet, being extremely common on the Nilgiris and adjoining hills and again in the Travancore Hills above 2,000 feet.

This Scimitar-Babbler is a shy, retiring bird of the forest. In the Nilgiris it breeds freely in the larger well-wooded *sholas* and, in the lower elevations, in the more extensive forests. In Travancore both Stewart and T. F. Bourdillon say that, though common and often heard, its deep "hoot-hoot" being constant evidence of its near presence, it is seldom seen and that it keeps, whether breeding or not, to deep tree-forest, though Stewart has occasionally taken its nest in Tea-bushes in Tea-gardens. It also seems partial for nesting purposes to the banks of roads running through the forest. Normally the nest seems to be much like that of other Scimitar-Babblers—a ball, round or oval, of loosely put together grasses and bamboo-leaves with a better constructed inner cup of fine roots and finer grasses. The grass is, however, more often mixed with other materials than one finds in most Scimitar-Babblers' nests. Fern-fronds, dead leaves, coarse roots and pieces of bracken are frequently to be seen whilst, occasionally, nests may be made almost entirely of moss.

Hume describes such a nest taken by a Mr. Carter on the Nilgiris on the 7th April. The nest "is a huge globular mass of moss and fine moss-roots some 7 inches in diameter, with, on the upper side, an entrance to a small egg-cavity some $3\frac{1}{2}$ inches in diameter, and 2 inches in depth. It is a most singular nest, a great compact ball of soft feathery moss and very fine moss-roots, which latter predominate in the inside of the cavity and so form a sort of lining to it. The great body of the nest is below the cavity, the overhanging dome-like covering of the cavity being comparatively thin."

Jerdon also describes a Nilgiri nest as made of moss and moss-roots.

Bourdillon took many nests of this Scimitar-Babbler and most of these he describes as domed affairs made of leaves and grass lined with roots, but in one or two he mentions moss as being used with the other materials, and in one he uses the expression "a great deal of moss."

The nest is nearly always placed on the ground, on a bank for choice, under the shelter of a bush, tree-roots or overhanging top to the bank but, occasionally, it is placed off the ground in a bush.

In Travancore they breed principally from December to February, but Stewart took one nest as late as the 2nd May. In the Nilgiris and other hills, although they do lay sometimes in December and January, more eggs are to be seen from the end of March to May. Many birds probably have two broods. Sometimes they sit very close, and one's attention is first attracted to the nest by a rat-like object bounding away from just under one's feet, for they never seem to fly when leaving the nest.

As to the number of eggs laid, Hume says "they lay five"; Davison says "the normal number seems to be five," and Miss Cockburn says "three to five." Then we have Bourdillon, who tells me they never lay more than three and often only two; Stewart's experience is the same, whilst both Cardew and Howard Campbell in the Nilgiris found two more often than three. Finally, in my own series I have no bigger clutch than three.

They are of the usual pure white, rather thin shell, with fine texture but no hard china gloss.

Twenty eggs average 25.6×18.8 mm.: maxima 27.4×20.4 and 27.3×21.2 mm.; minima 24.4×18.2 and 25.3×18.0 mm.

9

(209) *Pomatorhinus horsfieldi melanurus* Blyth.

THE CEYLON BROWN-FLANKED SCIMITAR-BABBLER.

Pomatorhinus horsfieldi melanurus, Fauna B. I., Birds, 2nd ed. vol. i, p. 212.

As its name implies, this bird is found only in Ceylon, where it keeps to the damper forests in the hills and is rare, though it occurs, in the drier areas. Wait says "it is a shy woodland species, which keeps close to cover, and ventures near habitations only when the thickets admit. In the hills it is especially fond of the strips of jungle bordering streams."

It also enters Tea-gardens and sometimes places its nest in a Tea-bush close to the forest. The nest itself and the site in which it is placed vary so greatly that it is hard to generalize. In most cases the nest is typical of that of the species, that is to say, a large oval ball of leaves, bamboo-leaves and grasses with an inner cup of fine roots, the latter compact and well put together, the former very loose and falling to pieces when handled. Among the more abnormal nests the following may be quoted:—"Nest of dead leaves and decaying vegetable matter, lined with fine grasses" (W. W. A. Phillips). "An untidy and rather deep cup composed of dried bark of the *Dadap* tree and a few dried leaves, the interior being lined with dried *Dadap* leaves" (T. E. Tunnard). "The nest was of a far neater construction than is usual with this bird, being a compact cup of fine rootlets and grass with a few dead leaves attached to the outside" (T. E. T.).

In regard to the site, the usual position is on the ground, in preference on a bank, in fairly thick forest. Hume, quoting Legge, refers to this curious variation: "Mr. Bligh has found the nest in crevices in trees, between a projecting piece of bark and the trunk, also in a jungle-path cutting and on a ledge of a rock. It is usually composed of moss, grass-roots, fibre and a few dead leaves, and the structure is rather a slovenly one."

Phillips took one nest from a hole in a tree in forest and Tunnard found one nest built in the fork of a tree in forest, six feet from the ground, and a second placed low down in a garden-hedge.

The breeding season extends from December to May, January and February being the two months in which most eggs are laid.

Hume quotes Legge to the effect that the eggs number three to five, and Wait, probably also quoting Legge, gives the same numbers as found in a full clutch. Five, however, must be wrong, for Wait, Phillips, Kellow, Tunnard and others seem never to have found more than three eggs in a nest, whilst they have also found two eggs only frequently incubated.

Thirty-two eggs average 25.1×18.6 mm.: maxima 27.1×20.0 mm.; minima 22.9×17.8 mm.

Pomatorhinus ferruginosus.

THE CORAL-BILLED SCIMITAR-BABBLER.

(210) Pomatorhinus ferruginosus ferruginosus Blyth.

THE WESTERN CORAL-BILLED SCIMITAR-BABBLER.

Pomatorhinus ferruginosus ferruginosus, Fauna B. I., Birds. 2nd ed. vol. i, p. 213.

This Coral-billed Scimitar-Babbler has a rather curious breeding distribution. It occurs all along the Himalayas from Nepal to the extreme East of Assam North of the Brahmapootra and it is also found not uncommonly in the Naga Hills on the South of that river, although in both the Khasia and Cachar Hills immediately adjoining them its place is taken by the next, or Eastern, race. Over most of its range it is found between 3,000 and 6,000 feet during the breeding season, descending sometimes another 1,000 feet, as Stevens shot it at this elevation in the Miri and Abor Hills. In the Naga Hills, however, Tytler obtained it between 5,000 and 8,000 feet and the few birds I saw myself in the Naga Hills were all at altitudes of some 7,000 feet.

Hodgson says that this Babbler breeds in Sikkim at an elevation of 5,000 or 6,000 feet. "Its nest is placed about a foot or two feet from the ground, in a bamboo clump or some thick bush, and is firmly wedged in between the twigs and shoots. It is composed internally of dried bamboo leaves, grass and vegetable fibres,

outside which bamboo sheaths are bound on with creepers and fibres of different kinds. The nest is more or less egg-shaped, with the longer diameter horizontal, some 7 inches or so in length and 5 inches in height, and at the entrance at one end, measuring some 3 inches in diameter."

Gammie found a similar, but larger, nest in Sikkim at 5,000 feet on the 19th May in scrub on the outskirts of forest. This nest was made of bamboo-leaves and long grass, with a thin lining of fibrous strips torn from old stems.

Gammie explains how the bamboo-leaves were placed alternately in layers lengthways and sideways in the nest, enabling the leaves to keep their proper position and the nest itself to keep watertight. I have myself noticed this arrangement in the building of the nests of several species of Scimitar-Babbler.

Masson took other nests of this bird in Sikkim at about the same elevation, *i.e.*, 5,000 feet, but Coltart and I had eggs brought us taken in the Abor country at about 7,000 feet.

Tyler's nests taken at Henema were just like those described by Gammie.

The number of eggs laid seems to be four or five, sometimes three only.

Twenty eggs average 23.5×18.0 mm. : maxima 26.1×19.3 and 25.6×19.7 mm. ; minima 22.7×17.2 mm. This appears to be very small in proportion to the size of the bird and a longer series would probably increase the average very considerably.

The breeding season appears to be from late April to the end of June.

(211) *Pomatorhinus ferruginosus phayrei* Blyth.

THE EASTERN CORAL-BILLED SCIMITAR-BABBLER.

Pomatorhinus ferruginosus phayrei, Fauna B. I., Birds, 2nd ed. vol. i, p. 214.

This bird breeds in great numbers between 3,000 and 5,000 feet in the Khasia Hills, Cachar Hills, Manipur and Chin Hills. It is also the form found on the Dikku and Patkoi Hills in the extreme South-East of Assam but the dividing line between this form and the typical in the different Naga ranges is not known.

It is, on the whole, a forest bird and in North Cachar keeps almost entirely to deep forest along streams, though it feeds much in bamboo-jungle and occasionally breeds in it. In the Khasia Hills it bred much more in the open and was especially fond of strips of grass mixed with bracken and odd shrubs on the outskirts of Pine forest. Here the nests were placed either on the ground where well drained, such as on banks or edges of ravines, or quite low down in scrubby bushes or tangled grass. In North Cachar, on the contrary, nests were generally on high bushes, sometimes as much as five or six

feet from the ground, whilst once I have taken a nest from a sapling seven feet up and twice from bamboo-clumps at about the same height.

The nests seem to be all much alike, shaped like a Rugby football placed on its side with an untidy entrance either at the side or at the small end, generally the latter. Most nests measure roughly, externally 7 or 8 inches by $4\frac{1}{2}$ to 6 inches, the internal cup being 3, or a little over, each way. Bamboo-leaves placed criss-cross to one another in layers for the outside and fine bamboo or other roots, well interlaced, for the inner cup, describes two nests out of three. Some nests are made partly or principally of broad blades of grass, some have many fern- and-bracken fronds used in their outer construction and a few have dead leaves, tendrils and weed-stems employed as a help to keep the other materials together.

The breeding season is a regular one, lasting through May and June; occasional nests may be taken in the end of April or early July, whilst in Margherita we had one nest brought to us with the parent birds on the 3rd August.

The eggs number three or four, three more often than four, while every now and then five are laid.

Fifty eggs average 27.1×19.3 mm.: maxima 29.6×18.1 and 26.4×20.0 mm.; minima 25.2×18.1 mm.

(212) *Pomatorhinus ferruginosus albigularis* Blyth.

THE TENASSERIM CORAL-BILLED SCIMITAR-BABBLER.

Pomatorhinus ferruginosus albigularis, Fauna B. I., Birds, 2nd ed. vol. i, p. 215.

This Babbler is resident, and breeds, in the mountains and hills of Burma from Tavoy, in Tenasserim, Northwards as far as the Karen Hills, where it meets *P. f. mariæ*.

I can find nothing on record about the breeding of this bird and the only collector to take its eggs and nest appears to be Mr. K. C. Macdonald, who took two nests on the Taok Plateau, 3,500 feet, about 30 miles East of Amherst. In both cases the parents of the nest were identified satisfactorily, but in a third nest, with three eggs, the parent bird was not obtained. The first two nests contained two and three eggs respectively, which average in size 24.4×18.6 mm. They were taken on the 4th and 20th April.

Pomatorhinus ruficollis.**THE RUFOUS-NECKED SCIMITAR-BABBLER.****(214) Pomatorhinus ruficollis ruficollis** Hodgs.**THE NEPAL RUFOUS-NECKED SCIMITAR-BABBLER.**

Pomatorhinus ruficollis ruficollis, Fauna B. I., Birds, 2nd ed. vol. i, p. 216.

The range of this Scimitar-Babbler is all along the outer lower hills of the Himalayas from Sikkim to Eastern Assam, North of the Brahmapootra.

Stevens (Journ. Bomb. Nat. Hist. Soc. vol. xix, p. 731, 1909) gives this bird an extraordinarily high elevation, recording it at 10,000 feet in Winter on the Singile La Ridge and 9,500 feet, where he shot a female.

He took several nests in Sikkim, of which, unfortunately, I can get no details. Primrose took a single nest with one egg near Darjiling, about 7,000 feet, and Osmaston obtained one with three eggs near Darjiling at 6,000 feet.

According to Hodgson this Scimitar-Babbler breeds in Central Nepal from April to June, making the usual globe-shaped nest of grass and bamboo-leaves, which it places in some thick bush or bamboo-clump. Gammie thus describes a nest he took at Rishap, 4,500 feet :—"The nest was placed on the ground in open country, but partially concealed by overhanging grass and weeds and immediately adjoining a deep humid ravine with a dense undergrowth. The nest was composed of dry grass, fern, bamboo and other dry leaves, put loosely together and lined with a few fibres. In shape it was domed or hooded."

Stevens says that it keeps very closely to dense undergrowth, either in forest or in secondary growth.

Thirteen eggs average 24.0×17.9 mm. : maxima 26.1×17.9 and 23.7×18.5 mm. ; minima 21.8×17.6 and 21.9×16.8 mm.

(215) Pomatorhinus ruficollis bakeri Harington.**THE CACHAR RUFOUS-NECKED SCIMITAR-BABBLER.**

Pomatorhinus ruficollis bakeri, Fauna B. I., Birds, 2nd ed. vol. i, p. 217.

This race of Rufous-necked Scimitar-Babbler is found throughout the hills of Assam South of the Brahmapootra, extending quite commonly into the Chin Hills.

It is a very numerous breeder in the South Assam Hills between 3,000 and 5,000 feet, whilst on Mount Victoria, in the Chin Hills, it nests nearly up to 7,000 feet. In the Bhamo Hills both Harington and Grant obtained it between 3,000 and 5,000 feet. My own experience of this bird is that it prefers tree-forest with a good deal of undergrowth. As a rule it selects forest which is humid

and green all the year round, but I have also taken its nest from stunted Oak forest with a carpet of Caladiums, Jasmine, brambles and other plants. Here, though the undergrowth is more scanty, there are thick patches of Blackberries and Raspberries in which the Scimitar-Babblers can comfortably hide their nests. Sometimes the nest is built in or under clumps of bamboos in mixed bamboo- or scrub-jungle and sometimes they are placed in the tangled secondary growth in deserted rice-fields. In the Khasia Hills I have also seen nests built in bracken and grass on the outskirts of Pine forest and once I found a nest built in a thick Daphne-bush inside Pine forest.

Most nests are, I think, placed actually on the ground, though generally it is in places where this slopes well so as to carry off the rain, which would otherwise soon destroy the nests. At other times they are placed low down in bushes, creepers or vines and but very rarely in a bush more than four feet from the ground.

The nests, which are of the usual dome-shape, measure anything between 6 and 8 inches in length and between 4 and 6 in breadth, with an inner cup of about $3\frac{1}{2}$ by 3 inches. The outer part of the nest is made most often of bamboo-leaves, not interlaced, but each layer at right angles to the next, and consisting of four to six such layers. Sometimes these are strengthened and bound with a few long roots, a weed-stem or two or a tendril but, for the most part, they have no binding and fall to pieces directly they are moved. Bracken-scrap, fern-leaves and grass are often mixed with the bamboo-leaves and I have taken a nest composed outwardly entirely of bracken. The inner cup or lining is of bamboo-roots much more strongly and tidily put together and often finished off with quite a good lining of fine roots.

Unfortunately the nests are so badly built that it is impossible to examine the contents without damaging them and the birds desert at once, even if incubation is quite advanced. Like most Scimitar-Babblers, they sit close, only leaving when an intruder is within a few feet of the nest. If this is high up they tumble out of it on to the ground and then leap away into the cover, generally remaining close by and, every now and then, giving an impatient little "hoot-hoot" or chuckle. If the nest is not handled too much they return to it at once and are very easy to snare but, if the material is badly displaced, they seem to spot it from some distance and keep away.

In Assam it breeds principally in May and June, a few birds laying both in April and July. In the Chin Hills it is rather earlier, more eggs being laid in April than later on, whilst, in the Bhamo Hills, Grant took eggs in April and Harington saw birds taking food to their young in that month, though he failed to locate the nests.

The eggs number three to five, generally four only. Fifty of them average 23.4×17.4 mm.: maxima 25.6×18.1 and 24.3×18.8 mm.; minima 21.5×17.5 and 23.2×15.7 mm.

Both birds share in the building of the nest but the cock bird seems to do all the carrying work, whilst the hen puts the materials together. She is much more particular than is he and discards much of what he brings, though this may be only henpecking, as I have seen him offer a discarded bamboo-leaf a second time and have it accepted, and I have also seen the hen, when her husband's back was turned, using the very pieces which a minute before she had told him were useless. So, too, both sexes take a part in incubation, as those trapped on the nest were as often one sex as the other.

Incubation takes, so far as I could make out, fourteen days.

Pomatorhinus ochraceiceps.

THE LONG-BILLED SCIMITAR-BABBLER.

(217) Pomatorhinus ochraceiceps austeni Hume.

THE MANIPUR LONG-BILLED SCIMITAR-BABBLER.

Pomatorhinus ochraceiceps austeni, Fauna B. I., Birds, 2nd ed. vol. i, p. 218.

Very little is known of the distribution and nidification of this Babbler. It was discovered in Manipur and I saw three birds, all trapped on their nests, obtained on the high range of hills on the Jiri Valley, the boundary between Manipur and the Cachar Hills, one of these being on the Cachar side.

The three nests found by me were all placed on the ground, practically covered by the fallen leaves and other débris, in deep evergreen forest at an elevation of a little over 5,000 feet. They were built on sloping grass and moss-covered banks, one well screened and covered by a tangle of bracken and Jasmine, one among some Raspberry vines and one under a densely foliated bush, the name of which I do not know. The forest was on very rocky and broken ground and in all directions boulders, great and small, broke up the undergrowth, whilst in some places the hills were so sheer that it was only a Serow which could negotiate them in any comfort. The nests themselves were the usual oval balls made of broad strips of grass, rather dark, rotten and fragile, broken dead fronds and a few roots, very loosely and untidily put together. Directly I took the nest up it fell to pieces, leaving the inner cup of rather coarse roots with a lining of still finer roots.

This was on the 19th June, the nest containing four eggs. Later, but on the Manipur side of the Jiri, I found two more nests on the 27th June, each containing three hard-set eggs. The birds returned to their nests within a few minutes of our hiding and were all caught in nooses.

The four eggs of the first nest average 27.5×19.4 mm. The eggs in the other nests were much smaller but I have not got their measurements.

(218) *Pomatorhinus ochraceiceps stenorhynchus* Blyth.

THE NAGA HILLS LONG-BILLED SCIMITAR-BABBLER.

Pomatorhinus ochraceiceps stenorhynchus, Fauna, B. I., Birds, 2nd ed. vol. i, p. 219.

This Scimitar-Babbler inhabits the hills of Assam South of the Brahmapootra between 5,000 and 8,000 feet, being found in the Cachar Hills next to the Naga Hills and thence North-East through the various ranges to the Trans-Dikku Nagas, East of Margherita. Southwards in Manipur and the extreme South-East of Cachar it is replaced by the preceding bird.

Nests of this bird have, I believe, only been taken by myself, and when I first took them I failed to distinguish between this form and *austeni*, having no material with which to compare them.

The description of one nest taken on 26th June, 1899, at about 6,000 feet, will suffice for most, though this particular nest might have been described as a cup, whilst all the others were truly domed.

The nest was placed on the ground at the foot of a tree growing in mixed tree- and scrub-jungle. It was composed principally of grass-stems, roots and bents, lined with darker and finer material of the same kind. Outside it was massed all about with dead bamboo-leaves, broad grass-blades and a few dead leaves of other plants. The materials were not badly put together, the nest in fact being rather stouter and better built than those of most Scimitar-Babblers. At the same time there was no finish to the nest, all the materials, even those of the lining and inner part, sticking straight into the air. In shape it was a very deep cup measuring, excluding all the stray pieces and ends, about $8\frac{1}{2}$ inches deep by about 6 in diameter near the base, narrowing to about 5 inches at the opening at the top. Inside the cup measured about 7 inches deep by 4 wide.

Other nests closely resembled this except that they were ovals placed on their sides. Most were placed in undergrowth in forest but I have taken nests from thick secondary growth in clearings in forest and one I have taken from low down among creepers growing over an oak in Oak forest.

All my nests were taken in May and June at elevations above 5,000 feet, but in the Naga Hills they certainly breed up to 9,000 feet.

The eggs number three to five and differ in no way from other Scimitar-Babblers' eggs.

Thirty eggs average 25.2×18.3 mm.: maxima 28.1×18.1 and 24.3×19.4 mm.; minima 23.2×18.5 and 24.0×17.1 mm.

Pomatorhinus erythrogenys.**THE RUSTY-CHEEKED SCIMITAR-BABBLER.****(219) Pomatorhinus erythrogenys erythrogenys Vigors.****THE SIMLA RUSTY-CHEEKED SCIMITAR-BABBLER.**

Pomatorhinus erythrogenys erythrogenys, Fauna B. I., Birds, 2nd ed. vol. i, p. 220.

How far West this Scimitar-Babbler breeds is not yet definitely known, though Hume gives the Beas as the boundary in this direction. It is common from Mussoorie to the Simla States and extends to the Garhwal Hills, the birds of which are nearly always identical with those of Simla*.

It breeds much more in the open than is usual with birds of this genus and a favourite position for the nest seems to be some grass-covered hill-side near forest, where they are built on the ground under a rock or under the shelter of a bush or tussock of grass. At other times it is placed in scrub-jungle or in scrub and bamboo whilst, at others again, it may be placed in thin forest.

Round Naini Tal Whympers obtained most of his nests at about 5,000 feet but Jones took them at 7,000 feet and upwards round Simla and Rattray took them near Mussoorie at about 6,000. Where especially protected by thick foliage or projecting rock above the nest is deep cup-shaped but, otherwise, it is domed and made of the usual materials.

They breed from early April to the end of June and it would appear that this species does not have two broods in the year.

Thirty eggs average 27.9×20.3 mm.: maxima 31.0×20.3 and 28.3×23.0 mm.; minima 25.6×19.1 and 27.0×18.9 mm.

(220) Pomatorhinus erythrogenys haringtoni Stuart Baker.**THE SIKKIM RUSTY-CHEEKED SCIMITAR-BABBLER.**

Pomatorhinus erythrogenys haringtoni, Fauna B. I., Birds, 2nd ed. vol. i, p. 220.

This race of Rusty-cheeked Scimitar-Babbler is found in Sikkim, where it is the most common of the genus, often occurring as low as 1,200 feet in Winter (Stevens). Oates says that in Summer it occurs at 10,000 feet but Stevens thinks this is much too high an altitude, and gives their range as 3,500 to 6,500 feet in the

* In the 'Fauna,' by a *lapsus calami*, Garhwal is given as the habitat of *haringtoni*. It is possible that three races will have eventually to be recognized and *ferrugilatus* of Hodgson revived for the Nepal birds, which are intermediate between the Sikkim and Simla races.

Rangbong and Mai Valleys, whilst he found a nest with four young at 7,000 feet at Mai "Khola."

Gammie says that these Scimitar-Babblers "nest in open country, immediately adjoining moist thickly wooded ravines, in which they feed and take refuge if disturbed from the nest. The nest is usually placed on sloping ground, more or less concealed by overhanging herbage, and is composed, according to my experience, of dry grass sparingly lined with fibres. It is large; one I measured *in situ* was 8 inches in height and 7 inches in diameter. The vertical diameter of the cavity was 4 inches and the horizontal $3\frac{1}{2}$."

Another nest found by Gammie is described as "a large, loose pad of fine grass and dead fern, with a few broad flag-like grass-leaves incorporated toward the base, and overhung by a canopy of similar materials."

Nests taken by Primrose and Stevens agree with the above descriptions. The birds seem to be very early breeders. Gammie found young hatched the last week in April, whilst Osmaston took eggs as early as the 9th April. It probably, however, continues to breed through May and June or it may have two broods, for Gammie and Stevens both obtained nests with eggs in the middle and end of June.

The full number of eggs seems to be always three and they call for no remark beyond the fact that short broad ovals, almost ellipses, are not rare in the eggs of all the subspecies of *erythrogenys*.

Twenty eggs average 28.2×20.6 mm. : maxima 30.4×21.8 mm. ; minima 27.0×20.1 and 27.5×20.0 mm.

(221) *Pomatorhinus erythrogenys maclellandi* Jerdon.

THE ASSAM RUSTY-CHEEKED SCIMITAR-BABBLER.

Pomatorhinus erythrogenys maclellandi, Fauna B. I., Birds, 2nd ed. vol. i, p. 221.

This Scimitar-Babbler is found throughout the hill-ranges South of the Brahmapootra in Assam, ranging into the Chin Hills and Manipur. It breeds at all elevations between 2,500 and 6,000 feet, quite possibly still higher in the Naga Hills, but it is most common between 3,000 and 4,500 feet.

Although it is to be obtained in all kinds of forest, the thickest and dampest as well as the lightest and driest, it seems to prefer scrub-jungle or patches of secondary growth in deserted cultivation surrounded by heavy forest. I also found it partial to narrow strips of bamboo-jungle on the banks of the hill-streams and dividing these from the dense humid forest. On the other hand I never found them in the wide stretches of open grass-land to the North and North-East of the Cachar Hills, though I found many nests built among bush, bracken and grass either in, or just outside,

Pine forest in the Khasia Hills. In the Chin Hills they are very abundant, Mackenzie taking ten nests between the 6th and 16th May, 1913. Here they were building in bamboo-thickets and in the growth in abandoned clearings. Venning took nests of this Scimitar-Babbler in the Chin Hills in April and remarks that they were "situated on sloping ground under some bramble sprays and well hidden among Canna leaves and woody herbs."

The nest is the usual domed affair of grass, bamboo-leaves etc. and calls for no detailed description.

The breeding season throughout its range seems to be April, May and June, whilst the number of eggs laid is either three or four, as often one as the other.

Forty eggs average 26.5×19.3 mm.: maxima 28.4×20.4 mm.; minima 24.0×19.1 and 25.8×18.3 mm.

(222) *Pomatorhinus erythrogenys gravivox* David.

THE YUNNAN RUSTY-CHEEKED SCIMITAR-BABBLER.

Pomatorhinus erythrogenys gravivox, Fauna B. I., Birds, 2nd ed. vol. i, p. 221.

This race occurs in the hills of Bhamo into Yunnan and Western China. In the Bhamo Hills it is resident and breeds from 5,000 feet upwards. Rothschild records *imberbis* from Yunnan but does not give any measurements and the two specimens obtained by Forrest (Nov. Zool. vol. xxxiii, p. 262, 1926) are probably of this race.

Harington took a number of eggs of this Scimitar-Babbler but says nothing about the kind of country they were taken in. "I found several nests of this bird; all were domed and placed near or on the ground. They seem to be early breeders, as the first nest I found was on the 10th April, with two eggs on the point of hatching. I also saw many young birds during the month."

Pershouse, Cook and Grant have all taken these nests since Harington did so and from their notes it would appear that this Scimitar-Babbler is a bird of the more open hill-sides, close to, but not overgrown with, dense forest. The nests were often placed under thick bushes growing among grass, sometimes under Raspberry vines, sometimes in, or under, bamboo-clumps, generally on the ground, more rarely one to two feet above it.

They breed from March to May, though Grant took one nest as early as the 17th February.

The eggs are of the usual colour and character, two or three forming the full clutch.

Twenty-two eggs average 26.6×20.3 mm.: maxima 27.9×21.4 mm.; minima 25.0×19.5 and 26.1×18.5 mm.

(223) **Pomatorhinus erythrogenys imberbis** Salvadori.

THE KALAW RUSTY-CHEEKED SCIMITAR-BABBLER.

Pomatorhinus erythrogenys imberbis, Fauna B. I., Birds, 2nd ed. vol. i, p. 222.

P. e. imberbis breeds from the Ruby Mines District in Upper Burma, through Karenni to Tenasserim.

The only note I can find on the nidification of this Scimitar-Babbler is that of Cook (Journ. Bomb. Nat. Hist. Soc. vol. xxii, p. 262, 1913), which I quote in full:—

“Fairly common, but not so common as the last species, *ripponi*, although being found in much the same kind of country [grass-lands]. Curiously enough I found this bird’s nest within a few feet of the nest of *P. ripponi*, although on a different date. Both were found in a small patch of thin grass and a little scrub-jungle, one of the few of such-like that had not been burnt. Cattle were regularly grazed over it and much of the grass had been trampled down. It is a marvel the nests had not been destroyed before I had the good fortune to find them.

“The nest of *P. imberbis* was constructed very much like that of *P. ripponi*, but larger and rather more clumsily built of coarse broad grass-stems and lined with fine grass. When first found the nest contained only one egg, which I left in hopes of obtaining a full clutch; but, though I waited until the solitary egg was almost incubated, no more were added.

“The parent bird was very cunning in its attempt to elude detection on leaving its nest. The first occasion on which I approached the nest I saw something brown scuttle away through the grass, which I mistook for a squirrel, but this, after it had gone some way, I discovered was the bird, its tail trailing on the ground. I made a second attempt to shoot the bird off its nest, but it eluded me, and I eventually had to wait and shoot it as it stealthily and cautiously returned.”

The single egg measures 26.6 × 20.4 mm.

Pomatorhinus hypoleucos.

THE HEAVY-BILLED SCIMITAR-BABBLER.

(224) **Pomatorhinus hypoleucos hypoleucos** (Blyth).

THE ARRAKAN HEAVY-BILLED SCIMITAR-BABBLER.

Pomatorhinus hypoleucos hypoleucos, Fauna B. I., Birds, 2nd ed. vol. i, p. 222.

This Scimitar-Babbler, a species distinguishable at a glance from all others of the genus by its massive bill, is resident and breeds throughout the lower hills of Assam, Manipur, the Looshai Hills

and Chin Hills. This is not a bird of high elevations, though I once found a nest at Guilang, about 4,000 feet. Its habitat is the foot-hills at 1,000 feet and under and the adjacent plains, where it keeps to the densest of bamboo-, scrub- or cane-jungle, seeming to prefer the last-named wherever available. Sometimes it is to be met with in forest, especially where the undergrowth is heavy and the ground swampy, but it practically never ventures into open country or grass-lands, either for breeding or feeding.

The first nest I found was in the Jetinga Valley at about 500 feet ; it was placed in a tangle of extremely thorny cane-brake in soaking wet evergreen forest on the banks of the Jetinga stream. A bird scurrying along the ground attracted my attention to what looked like a mass of wind-driven bamboo-leaves, visible from the track I was passing along, yet almost ungetatable. Patience and time, however, enabled me to cut a path through the few yards of matted canes and then, putting my hand into the mass of leaves, I took out three fine white eggs of this Scimitar-Babbler. The nest was a huge semi-domed affair, lying on its side, and measuring about 14 inches long by about 10 wide, made of bamboo-leaves and grass with a few dead leaves and roots mixed in, the rough and meagre lining consisting of a few roots and finer scraps of grass. Retiring, I hid myself carefully and, in a few moments, I saw the bird sneaking like a rat through the dead leaves and fallen debris ; in a minute she was on the nest again but, directly I stood up and exposed myself, she leaped out of the nest and I shot her as she bounded off, taking leaps which must have been three feet long at a time.

Other nests found later were similar in construction but made more exclusively of bamboo-leaves. They were placed on the ground in bamboo- and scrub-jungle of the thickest kind or in cane-brakes like that already described. One of my collectors said that the bird was very common in the immense reeds, canes and elephant-grass stretches of Sylhet at the foot of the Khasia Hills but that it was impossible to locate their nests, though their deep low hoots could be heard everywhere in the mornings and evenings. The one nest he succeeded in getting was placed in among a dense mass of shrubs and prickly creepers.

A nest found by Hopwood differed considerably from those obtained by me. He describes it (Journ. Bomb. Nat. Hist. Soc. vol. xxi, p. 1198, 1912) as "made of the twigs and tendrils of a creeper, and thickly lined with roots and fibres of ferns. It was placed in a fork of a bamboo and contained two eggs. It was taken on the 26th January.

They are very early breeders, some birds laying in January and February, whilst my latest were taken on the 25th April. Mr. H. A. Hole took eggs during January and February in Sylhet and Cachar and Inglis told me that they certainly bred in these months in Hylakandy.

They lay two or three eggs, perhaps usually the latter.

Twelve eggs average 30.1×21.7 mm.: maxima 32.5×22.2 and 29.8×22.4 mm.; minima 27.5×21.0 mm.

(225) ***Pomatorhinus hypoleucos tickelli*** Blyth.

THE TENASSERIM HEAVY-BILLED SCIMITAR-BABBLER.

Pomatorhinus hypoleucos tickelli, Fauna B. I., Birds, 2nd ed. vol. i, p. 223.

Hitherto this bird has only been recorded for certain from Tenasserim. But some form of this species is found in Eastern Burma and we do not yet know where the two subspecies meet. I have two eggs attributed to this form, from Karenni, which measure 31.3×22.4 and 30.9×22.6 mm.

***Xiphiramphus superciliaris*.**

THE SLENDER-BILLED SCIMITAR-BABBLER.

(226) ***Xiphiramphus superciliaris superciliaris*** Blyth.

THE SIKHIM SLENDER-BILLED SCIMITAR-BABBLER.

Xiphiramphus superciliaris, Fauna B. I., Birds, 2nd ed. vol. i, p. 224.

This little Scimitar-Babbler is resident and breeds between 3,000 and 8,000 feet from Sikkim and Eastern Nepal to the mountains North and South of the Brahmapootra. Stevens, however, found it during April and May as high as 10,000 feet in Sikkim. In Assam South of the Brahmapootra I only once found it below 5,000 feet, and in the Khasia Hills its rare appearances, when breeding, were only between 5,200 and 6,000 feet.

It is a bird of very dense cover. Stevens found this bird in May and June in "the dense *malig* bamboo thickets." In N. Cachar I found it in the stunted Oak forests where the undergrowth was exceptionally thick, whilst in the Khasia Hills it frequented evergreen forest and especially the dense Oak and Rhododendron forest on the rocky and broken ridges above Shillong and about 6,000 feet elevation.

The nests found have all been like that described by Hodgson—"large globular ones, composed of dry bamboo leaves and green grass, intermingled and lined with fine roots and fibres. It was placed in the crown of a stump from 2 to 3 feet from the ground. Sometimes the nests are placed in tufts of high grass or in bushes, but never at any great elevation from the ground." This description would suit any of the other nests taken except that all of them were nests which were either on, or almost on, the ground.

Gammie, however, describes a very different nest. He writes: "I took a nest of this Scimitar-Babbler on the 29th May, in the

middle of the large forest on the top of the Mahaldorum ridge, at about 7,000 feet elevation. It was built on the ground, on the top of a dry bank at the side of a path, and was overhung by a few grassy weeds. In shape it was a blunt cone, laid on its side, with the entrance at the wide end. It was loosely made of the dead leaves of a deciduous orchid (*Pleione wallichiana*), small bamboo, chestnut and grass, intermixed with decaying stems of small climbing plants."

This Babbler seems to have a long breeding season for I have taken eggs from the 27th April to the 6th July.

They lay three to five eggs, perhaps a little more glossy than most eggs of Scimitar-Babblers but, otherwise, quite typical.

Thirty eggs average 23.7×17.8 mm. : maxima 26.1×19.9 mm. ; minima 22.4×18.0 and 23.2×16.8 mm.

Timalia pileata.

THE RED-CAPPED BABBLER.

(227) Timalia pileata bengalensis Godw.-Aust.

THE BENGAL RED-CAPPED BABBLER.

Timalia pileata bengalensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 226.

This little Babbler ranges from Kuman, where it has been obtained breeding by Whymper, all along the outer Lower Himalayan Terai and submontane regions to the extreme East of Assam both North and South of the Brahmapootra. Whymper found it at about 3,000 feet in the Kuman Terai and I have found it up to 4,000 feet—this is quite exceptional—in the Khasia Hills and commonly up to 2,500 in the N. Cachar Hills. In Assam and Eastern Bengal it is found in suitable localities throughout the Plains. It extends to Arrakan but Venning reports it as "not common" and generally found near the sea.

The Red-capped Babblers may most often be met with in wide open grass-lands in the hills or in the enormous tracts of elephant-grass, reeds and sun-grass running along the foot of the Himalayas. They also frequent reed-beds about swamps, whilst Jerdon says they may be found in unfrequented jungles and thickets—this is probably very unusual—or, as Cripps says, "in the patches of cane brushwood jungle found in and around villages." In their upland grass haunts I think they prefer those which have dotted about them a certain number of small bushes, for the majority of nests one finds are tucked away in the bases of, or among the roots of, these bushes. Occasionally it places its nests in the grass-covered *bunds* or banks which divide ricefields or other patches of cultivation from one another, whilst occasionally it may even be built among the scrub and grass at the edge of a village road.

The nests are rather roughly made balls, some 4 by 6 inches in size, constructed as a rule almost entirely of coarse grass-blades, or shreds of grass, lined very scantily with rather finer grass. Occasionally either a few leaves or a few roots, sometimes both, may be worked into the nest with the grass. The entrance is large in proportion to the size of the nest, about two inches in diameter and very carelessly finished off, the ends of the grasses crossing it everywhere. It stands no handling and comes to pieces almost directly it is taken out of its position. The nest is always, I believe, placed quite low down. As I have already said, most of those I have taken personally were built either on the ground under the shelter of a bush or tussock of grass or else were wedged into the roots of bush or grass only a few inches above the ground. They are always well hidden, so that one has almost invariably to push the grass or branches on one side before the nest is seen and, if the position is roughly handled and disturbed, the birds will desert at once, even if the nest itself is not touched.

I think these birds probably breed twice, as in Assam we have found nests with full clutches during the first week in March, yet we found others up to the end of June. Cripps, in Furreedpore, obtained nests in April, but Parker got them near Calcutta on the 14th August.

They lay three to five eggs, of which the ground is a china-white, and they are marked with small blotches of dark umber-brown and a few secondary ones of dark inky grey. As a rule the markings are fairly numerous everywhere, but still more so at the larger end; in other eggs the blotches are more scanty and then often a little larger. Rarely the blotches are reduced to very small spots or even specks. In some eggs the underlying marks are numerous and give a purply tinge to the egg; in one or two the larger primary blotches are a rather reddish-brown, and I have one clutch of three in which the markings, but few in number, consist of rather light reddish-brown spots, with secondary ones of pinkish-grey. The texture is hard, fine and close, the surface having a slight or, in a few cases, a high gloss. In shape they are broad blunt ovals, very little compressed towards the smaller end.

Fifty eggs average 19.0×14.5 mm.: maxima 19.6×15.8 mm.; minima 17.0×13.9 and 18.2×13.2 mm.

(228) *Timalia pileata intermedia* Kinnear.

THE BURMESE RED-CAPPED BABBLER.

Timalia pileata jerdoni, Fauna B. I., Birds, 2nd ed. vol. i, p. 227.

Timalia pileata intermedia, *ibid.* vol. viii, p. 602.

This race of Red-capped Babbler is resident and breeds over practically the whole of Burma wherever there are grassy fields,

reed-beds etc., from the level of the plains up to about 3,000 feet. It is also found over much of Indo-China and extends into Southern China.

Oates, as quoted by Hume, gives a good description of this bird's breeding in Pegu :—"The nest is placed in the fork of a shrub very near to, or quite on, the ground and is surrounded in every case by long grass.

"The nest is made entirely of bamboo-leaves and is lined sparingly with fine grass. No other material enters into its construction. It is oval, about 7 inches in height and 4 inches in diameter, with a large entrance at the side, its lower edge being about the middle of the nest.

"When the bird frequents elephant-grass, where there are no shrubs, it builds on the ground at the edge of a clump of grass, and I have found two nests in such a situation, only a few feet from each other.

"In looking for the nest a great deal of grass is necessarily trodden down; the consequence is that if you do not find eggs, there is little chance of their being laid later on."

To this he adds: "This bird would appear to have two broods a year, for I procured two sittings of three eggs each this year in April, former nests having been found in June and July."

At Kalaw, in the Shan States, Cook found several nests during June and July which in construction etc. were exactly like those taken by Oates. Similar, also, were eggs and nests taken by MacDonald at Pakokku, by Hopwood at Saquing and by the latter again in the Chin Hills.

As Oates suggests, they seem to have two broods, the first in April and May, the second in June, July and August, or else, possibly, birds breed indifferently all through these five months.

Three or four eggs seem to be the full complement and they are indistinguishable from those of the preceding bird.

Thirty eggs average 19.1×15.0 mm. : maxima 20.2×14.9 and 19.9×15.9 mm. ; minima 17.6×14.2 mm.

(229) *Dumetia hypertythra* Franklin.

THE RUFOUS-BELLIED BABBLER.

Dumetia hypertythra, Fauna B. I., Birds, 2nd ed. vol. i, p. 228.

I can add little in detail to the breeding area of this Babbler already given in the 'Fauna.' It is found South as far as Khandalla in the West and to the Godavery Valley in the East. Thence it is found northwards throughout the Deccan and Central Provinces, Central India, Chota Nagpore and the drier Western districts of Bengal, Orissa and Behar and thence again to the foot-hills of the Himalayas from Kuman to Sikkim.

The Rufous-bellied Babbler breeds in gardens, parks, scrub and grass round villages and towns; in grazing-grounds covered with half-eaten and trampled grass and dotted with bushes; in open waste ground with enough bushes and grass to provide cover and even in ravines in jungle and forest. They also frequent bamboo-jungle for nesting purposes. This is one of the most common birds in India, so common in fact that, as with other birds equally common, no one has troubled to write any description of the breeding grounds and haunts, and there is, therefore, nothing to quote in regard to them.

The nests are little balls of grass with an entrance on one side between 4 and 5 inches in diameter each way, with egg-cavities measuring, roughly, $2\frac{1}{2}$ inches across, sometimes a little smaller and sometimes a little larger, the size depending a good deal on the compactness or otherwise of the outer material. This nearly always consists of either grass-blades or bamboo-leaves, sometimes one, sometimes the other, and sometimes the two mixed. Leaves are often incorporated with these two items, especially at the base and, less often, a few roots. These are put together better than they are by the Scimitar-Babblers and form a much more compact nest. The lining is of a few fine grasses, whilst Brooks once found a nest lined "with a few hairs."

It is placed either actually on the ground under a bush, tussock of grass or clump of bamboo, or else in one of these a few inches to a couple of feet above it. Generally it is well hidden, but one nest found by Mr. Henry Wenden was "situated in a thorny bush in a cactus hedge, by a narrow lane, not four feet wide, through which numerous people passed. The nest, about three feet from the ground, was in no way concealed."

The breeding season is June, July and August throughout its range.

The eggs are three or four in a full complement and some are very like small eggs of *Timalia*. Most, however, have the spots and blotches much redder-brown, with a tinge of reddish in the ground-colour also, whilst I have one clutch in my series, taken by Col. R. Sparrow in the Deccan, which is truly erythristic, having a deep cream ground with brownish-red, or brick-red, markings. The majority of eggs have an appreciable gloss; in a few, highly developed, occasionally very faint. In shape they are broad obtuse ovals, rarely rather drawn out but never very pointed.

Hume mentions "striated" eggs as being among those he has seen, but there are none such among his series, now in the British Museum. They must, therefore, be quite exceptional.

Fifty eggs average 17.3×13.8 mm.: maxima 19.8×13.1 and 18.4×14.2 mm.; minima 16.5×13.1 mm.

Dumetia albogularis.

THE SMALL WHITE-THROATED BABBLER.

(230) **Dumetia albogularis albogularis** (Blyth).

THE SOUTHERN SMALL WHITE-THROATED BABBLER.

Dumetia albogularis albogularis, Fauna B. I., Birds, 2nd ed. vol. i, 229.

This little Babbler is found throughout Ceylon and South-West India as far North as, but not including, Rajputana. It is very common at Baroda but at Deesa, just North of this State, the Mt. Abu form takes its place.

The White-throated Babbler haunts areas covered with grass, scrub or bamboos, whilst in Ceylon it is very common in Tea and Rubber Estates. It also occurs and nests in thin forest, more especially at the edges, but it does not breed in heavy or very humid forest. Occasionally it may breed in gardens and often it does so round about villages in the grazing-grounds and scrub. It is found up to about 4,000 feet or more in India, whilst in Ceylon Wait records it as ascending "up to about 5,500 or 6,000 feet." The nest is a little ball of grass-blades or bamboo-leaves, most often the former, measuring about 5 or 6 inches in diameter, with a cavity for the eggs nearly 2 inches less each way. The entrance is at the side, just above half way up, and may measure anything between one and two inches. Sometimes there is a little lining of roots and fibre but often there is no lining at all. Darling describes the nests taken by him in the Wynaad at 3,000 feet as balls of grass about six inches in diameter "and lined with fine grass."

The favourite situation for the nest is undoubtedly a small thorny bush growing in, and mixed up with, grass, standing in grass-fields. Here it is wedged in among the roots actually on the ground or in a fork a few inches above it. At other times it is built in among the roots of the grass, whilst at odd times many other sites have been recorded. Miss Cockburn had a nest brought to her which had been built in a Coffee-tree at Kotagherry. Darling obtained nests "built in high grass nearly on the ground, or in date palms, or in arrowroot in the jungle up to heights of three feet." Wait says that they like the sides of tracks running through grass or scrub, whilst among the nests taken by W. W. A. Phillips have been some "in clumps of lemon grass," in Tea-bushes and even from small bushes on the outskirts of forest.

In the Nilgiris the White-throated Babbler breeds principally in May and June; in Mysore Darling says any time between May and October. In Baroda Betham found many nests in June, July and August, whilst in Ceylon they seem to breed more or less throughout the year, for I have eggs in my own series taken in

February, March, May, August and November. Wait gives its breeding season as December to June.

It is a shy, skulking little bird, deserting its nest on very slight provocation and, unless the eggs are hard set and near hatching, will often desert, although the nest itself may not have been touched. Betham, *in epistola*, writes : "In Baroda I used to watch the birds building, but they desert on the slightest excuse and I had to be careful not even to approach the nest. Even then I was not very successful, and more birds deserted than laid a full clutch."

The eggs number three or, very rarely, four, and I do not think they could be distinguished from those of the preceding bird. A few clutches differ in having very fine markings such as I have not seen in *D. hyperythra*. I have also a single clutch of three which has a glossy china-white ground marked with primary dark brown and secondary ashy markings which form a bold ring round the larger end and are sparse elsewhere. This is, of course, a somewhat abnormal clutch which might be found in any species or subspecies of *Dumetia*.

Fifty eggs average 17.4×14.1 mm. : maxima 19.0×14.1 and 17.9×14.4 mm. ; minima 15.5×13.1 and 17.2×13.0 mm.

(231) *Dumetia albogularis abuensis* Harington.

THE MOUNT ABU SMALL WHITE-THROATED BABBLER.

Dumetia albigularis abuensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 230.

This race of White-throated Babbler is confined in Rajputana to Mt. Abu and the dry arid country surrounding, though Harington includes the whole of the country as far South as Mahabaleswar.

Barnes, writing of *Dumetia albogularis* as a species, says : "It occurs all along the Sahyadri Range ; is not uncommon at Mount Aboo. It is a permanent resident at all these places, and breeds at the end of the hot weather and during the early part of the monsoon.

"The nest is globular in shape, having the entrance near the top, and is composed of broad-leaved grasses and sedges and is placed on the ground, occasionally in low bushes.

"The eggs, usually four in number, are oval in shape, pinched in a little at one end, and measure 0.73 inch in length by about .51 in breadth. The ground-colour is china-white (sometimes pinkish-white), freckled and spotted with bright red ; the markings are usually much denser at the larger end, where they often form a cap or zone, and having an occasional spot of lilac or clayey-brown intermingled."

Three eggs taken by Barnes at Deesa on the 27th July measure 18.3×14.5 , 17.6×14.0 and 17.0×13.4 mm.

In shape these are broad blunt ovals and in colour as described by Barnes.

Gampsorhynchus rufulus.**THE WHITE-HEADED SHRIKE-BABBLER.****(232) Gampsorhynchus rufulus rufulus Blyth.****THE SIKKIM WHITE-HEADED SHRIKE-BABBLER.**

Gampsorhynchus rufulus rufulus, Fauna B.I., Birds, 2nd ed. vol. i, p. 231.

This Shrike-Babbler is found in the outer hills of the Himalayas from Sikkim to Eastern Assam, East to the Chin Hills and South to Tenasserim.

I was many years in North Cachar before I succeeded in obtaining this bird's nest, although the bird itself was very common. A nest with four young shown to me by a Naga was a large globular affair, as recorded in 'The Ibis' (1895, p. 53). Off this he had shot what he believed to be the two parent birds but evidently there was some mistake, for the next nest, which I found myself, was nothing like it. This I recorded also in the same journal (Ibis, 1906, p. 96):—"On the 9th of August, 1898, I took a nest of this bird, containing four eggs, in the Laisung Valley, North Cachar, at an elevation of some 4,000 ft. It was very flimsy and rough, made outwardly of dead leaves extremely carelessly fastened together with a few cobwebs, a scrap or two of moss and one twig. The thin lining was of fine grasses and the slender tendrils of a small convolvulus. Outwardly the nest was so untidy, with scraps sticking out in all directions, that it was not easy to measure but, roughly speaking, it was about 7" diameter one way and 5" the other, the depth being about 2·8". The measurements of the interior were about 2·5" by 2·8" by about 1·5" in depth. It was built in a small fork of a straggling bush standing in dense evergreen forest on the banks of the Laisung stream. It could be reached easily by hand, and no particular attempt had been made to hide it. The birds, both of whom seemed to be about the nest, slipped into the undergrowth when I approached, but the female soon returned and was shot."

Two nests with eggs and birds, brought in by Nagas in 1904 to Dr. Coltart, appeared to have been of much the same description as the above but were too broken to prove much.

In 1907 and 1909 I took two more nests myself, though in each case they were first found by Khasias, who told me where to look for them. These again were of the same type as that found at Laisung shallow saucers of leaves, twigs, roots, moss and lichen pound together with one or two fine long roots and tendrils and well plastered with cobwebs. The scanty lining was in one case of black roots only, in the other of grass and roots. The 1907 nest was in a high straggly bush in forest, the 1909 one in bamboo-scrub fixed to a cluster of bamboo-twigs about five feet from the ground. In both cases a pair of Shrike-Babblers were about

the nest but, as I was badly hidden, would not get on to it. In both instances, also, I was travelling and could not keep my "tonga" and ponies waiting so, unfortunately, was obliged to take the eggs without seeing the birds on the nest.

Two other similar nests have been brought in to me by natives, so I think we can consider the nidification of this bird solved.

For breeding purposes these Shrike-Babblers seem to leave their usual resorts of thin forest, bamboo-jungle and open country and move into deeper, wetter, evergreen forests, perhaps also at a little higher level, 1,500 to 4,000 feet, instead of the foot-hills to 2,500 feet.

The eggs number three or four and are of two types. In one the ground-colour is a pale grey-green with blotches of dark brown and secondary markings of dull grey scattered freely over the whole surface and even more numerous at the larger end than elsewhere. In the second type the ground is a pale dull reddish, whilst the primary markings are of reddish-brown, the underlying marks being only visible with a rather powerful magnifying glass. The texture is rather coarse, not very close, and the eggs are fragile for their size. The surface is dull and glossless except in one clutch of three eggs of the brown type, in which there is a decided gloss. The shape is a broad blunt oval. Except in size the eggs can be exactly matched with those of *Drymocataphus*.

Twenty eggs average 23.9×17.6 mm.: maxima 25.0×17.8 and 24.0×18.3 mm.; minima 21.6×17.3 and 22.1×16.8 mm.

The normal breeding season seems to be from the end of April through May, and it is noticeable that the flocks break up in late March. The nest found by myself in August may have been a second brood or abnormal in time.

Chrysomma sinensis*.

THE YELLOW-EYED BABBLER.

(234) Chrysomma sinensis sinensis Gmelin.

THE CHINESE YELLOW-EYED BABBLER.

Pyctorhis sinensis sinensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 233.

Chrysomma sinensis sinensis, *ibid.* vol. viii, p. 602.

Ticehurst's distribution for this race of Yellow-eyed Babbler is "China (Canton); S. and W. Yunnan, Siam, S. Shan States, Burma, Assam, Bengal; to this race I am inclined to assign birds

* For races of this species see notes by Ticehurst in his "Birds of Sind" (Ibis, 1922, p. 542). It would seem impossible that the Belgaum and Central Indian bird can be nearer to the Chinese form than it is to the Khandeish bird, but I accept Ticehurst's distribution provisionally.

from the Central Provinces and Madras and Belgaum District ; where exactly this bird meets the next in the Bombay Presidency is not clear, but birds from Khandeish northwards belong to the next race."

Ticehurst nowhere mentions the other localities in Southern India where this bird is common, such as Nilgiris, Deccan etc., but as birds from these districts seem to be the same as others from Belgaum we may retain them with the typical form *sinensis*.

The Chinese Yellow-eyed Babbler breeds in the plains and in the hills alike. In the Nilgiris Hume says it breeds up to 5,000 feet, but in Assam I did not obtain it, breeding, much over 2,500. On the other hand, Mackenzie and Hopwood, who took many nests in Tenasserim, found it breeding on the Taok Plateau up to 4,000 feet and at Maymyio, in Upper Burma, up to 3,500 feet.

This bird in Southern India seems to be a frequenter of gardens, the surroundings of villages, scrub-jungle and patches of grass in cultivated areas. It also sometimes nests on weeds in sugar-cane fields, some of the pea-crops etc. but, apparently, never in tree-jungle or bamboo-clumps. In Burma and Assam, however, although they may sometimes be found breeding in scrub and grass surroundings of villages, their true homes are in the vast stretches of sun-grass and elephant-grass which stretch mile on mile, with no forest and no trees to break the monotony, whilst the few bushes and shrubs growing in them keep their heads below the waving tops of the grass itself.

Nearly all my nests were taken when out after Buffalo and Gour. Ploughing one's way through matted grass, anything from three to seven feet high, one would get a glimpse of a small red-brown bird with a white waistcoat flitting hastily away, its tail jerking over its head and its wings purring softly, and then one knew that a Yellow-eyed Babbler had left its nest. Generally there was a small bush or tall stout weed in which the nest was placed, though occasionally it was built fastened to two or three strong stems of grass. The Babbler, however, kept so much to the scattered bushes and weeds for nesting purposes that I always inspected those close to my track, sometimes successfully, though I had seen no bird.

In Behar Inglis found them breeding in Indigo-fields but he never got the nests in Mango or any other big trees.

The nest, whether built in grass, small bushes, or stunted trees, is always the same, a very neat, beautifully built structure, shaped like a blunt inverted cone. The materials consist of long strips of grass or reed-blades, bark from the stems of dead reeds, as well as long thin strips of a fibrous material, all intricately and compactly intertwined round and round, nearly always including the supporting twigs or grass-stems, finished off and plastered over with spiders' webs. Often a material is used which looks like scraps of rice-paper, probably a grass-bark, though I could never trace whence

it was obtained, whilst very fine fungoid rhizomorph is also sometimes used in small quantities. The lining is nearly always of the finest grass-stems, less often of very fine roots, whilst once Hume records hair being used for the purpose. In size the nests do not vary much, though the point of the cone, hanging downwards, may be more or less prolonged. The nest proper is as near as possible 4 inches across the top, with an internal cavity of about $2\frac{1}{2}$ to 3 inches in width and about 2 to $2\frac{1}{2}$ inches in depth. The cone may be prolonged and so make the total outer depth of the nest as much as 7 inches, or it may be short and reduce this to 5 inches, whilst in some cases the nest is just a hemisphere about 4 inches deep.

Everywhere, I think, the real breeding season begins after the break of the rains, about the second week in June, and continues to July and August and, occasionally, into September. I have, however, once or twice seen eggs as early as April.

Three to five eggs are laid but, with this race, the most usual number is four, and they certainly rank among the most beautiful and varied of eggs. As the variations go through the same types in the different races the descriptions given below suffice for one and all and need not be repeated:—

(1) Ground very pale to warm pink, the whole surface covered with innumerable small spots and specks of pinkish-red, more numerous and often coalescing at the larger end. Secondary spots of lavender only discernible with a glass.

(2) The same but with deep red spots.

(3) Pale pink ground mottled with reddish, the blotches larger and looking as if they had run, interlaced with a few lines and scribbles of darker red-brown. These eggs may be matched with many of those of *Alcippe*.

(4) White ground with fine bold blotches of blackish-purple, generally numerous at the larger end and sparse elsewhere. A few deep inky grey marks underlying the others.

(5) Pale salmon ground with similar bold markings, but of deep blood-red.

(6) Pale pink, more or less covered all over with pale smudgy blotches of darker pink.

(7) White with a few scattered specks, sometimes pink, sometimes deep red and in others blackish-red.

Intermediates between these types constantly occur, but most eggs may be definitely allocated to one or the other of the seven.

In shape the eggs are broad blunt ovals, the texture is fine, close and hard, the shell stout for so small an egg and the surface highly glossed.

One hundred eggs average 17.9×14.9 mm. : maxima 20.3×16.5 and 20.1×16.6 mm. ; minima 16.0×13.5 mm.

(234 a) *Chrysomma sinensis hypoleucus* Franklin.

THE WESTERN YELLOW-EYED BABBLER.

(Not included in Fauna B. I., vol. i.)

Chrysomma sinensis hypoleucus, Fauna B. I., Birds, 2nd ed. vol. viii, p. 602.

The type-locality for this form has been restricted by Ticehurst to "United Provinces" and the range he gives as "Sind, Jodhpur, Punjab to Umballa, Dera Ghazi Khan, N.W.F.P., United Provinces Khandeish and Kathiawar."

The nesting-sites of this race and the nests and eggs themselves agree well with those of the typical subspecies.

Nunn, writing of nests taken near Agra, says "the nests which I have hitherto found have been in Mango-trees, rose-bushes, or peach- and orange-trees." This nest was taken in September but Adams, also writing of Agra, says the normal breeding months are May, June and July.

Betham found nests with eggs at Poona in April and at Poona, Baroda and Dehra Dun from July to September, so it is probably unusual for them to commence breeding until the Rains have well started.

The eggs are just like those of the other races and vary through the same beautiful types, but five eggs seem to be laid more often than four.

Forty-six eggs average 19.1×14.5 mm.: maxima 21.9×13.9 and 18.0×15.6 mm.; minima 17.0×14.0 and 17.3×13.9 mm.

(235) *Chrysomma sinensis saturator* Ticehurst.

THE BHUTAN YELLOW-EYED BABBLER.

Pyctorhis sinensis saturator, Fauna B. I., Birds, 2nd ed. vol. i, p. 234.*Chrysomma sinensis saturator*, ibid. vol. viii, p. 602.

Again quoting Ticehurst, the range of this subspecies is "Bhutan Doars, Nepal, Sikkim, Bhutan and Buxa Doars."

When 'Nests and Eggs' was rewritten by Oates the nest of this race had not been taken. Since then the only clutch I can trace is one taken by A. M. Primrose at Kurseong, in the Darjiling District, at about 5,000 feet, which is probably quite an exceptional elevation.

This clutch of four eggs, is of the salmon-coloured, blotched and clouded type and the eggs measure 20.3×16.5 , 20.0×15.4 , 20.1×16.6 and 19.8×15.8 mm.

They were taken on the 17th May from a nest in a small bush in grass-land.

(236) *Chrysomma sinensis nasalis* (Legge).

THE CEYLON YELLOW-EYED BABBLER.

Pyctorhis sinensis nasalis, Fauna B. I., Birds, 2nd ed. vol. i, p. 235.

Chrysomma sinensis nasalis, *ibid.* vol. viii, p. 602.

This Yellow-eyed Babbler is confined to Ceylon. Wait gives its distribution in that island. "It is locally, but fairly widely, distributed up to about 6,000 feet, but its chief haunts are the South-East of the Island, from the Uva patanas to the sea." He adds: "It may be looked for in fern lands, stretches of mana grass, low jungle, lantana scrub and thick undergrowth."

The nest seems to be a small edition of that of the continental forms, very neat little cups of "ribbon" grass, lined with finer grass or with very fine vegetable fibre and well bound with spiders' webs, making the nest very compact and solid. It is cup-shaped, deep but not prolonged into a cone like that of the Indian bird, and it is built into a small fork of a low bush or, more often, into tufts of the grass known as "Mana-grass." The breeding season is said by Wait to be February to May; Phillips has taken eggs once in December, once in May and once in July, whilst Tunnard took one nest with four eggs in May.

Probably a big series of eggs would give as numerous variations as other species, but the few in my own collection are all of the profusely spotted type; varying from pure china-white with very numerous small blotches of chocolate-brown to dull salmon with equally numerous marks of brick-red; two other clutches are links between these two.

The full clutch numbers three or four.

Sixteen eggs average 17.0×13.8 mm.: maxima 18.1×14.1 and 17.4×14.2 mm.; minima 16.2×13.9 and 16.8×13.3 mm.

Phillips took nests at 3,000 feet, 2,500 feet and another much lower down about 8 miles North-East of Nampantola.

Chrysomma altirostris.

THE YELLOW-BILLED YELLOW-EYED BABBLER.

(237) *Chrysomma altirostris altirostris* Jerdon.

THE BURMESE YELLOW-BILLED YELLOW-EYED BABBLER.

Pyctorhis altirostris altirostris, Fauna B. I., Birds, 2nd ed. vol. i, p. 235.

Chrysomma altirostris altirostris, *ibid.* vol. viii, p. 602.

This Yellow-eyed Babbler is found throughout the plains of Lower Burma, where it haunts the "immensely high thick grass."

Nothing is known of its nidification, but I had a nest and five eggs sent me from the plains, at the foot of the Maymyio Hills, which

were said to be of this species and which are probably correct. The nest is a very deep cup of fine shreds of grass-blade, beautifully matted and bound together with spiders' webs and lined very neatly with fine fibrous material. It measured about 4 inches wide by about $4\frac{1}{2}$ deep externally and was built on an *ekra* or elephant-grass stem at the junction where the leaves shoot out. The materials on one side were wound round the stem. It was placed about four feet from the ground in a sea of elephant-grass about ten feet high and, when the bird was shot, it fell into the mud and tangle and was never found.

The five eggs, which are undoubtedly *Chrysomma* of some species, are pale salmon very handsomely and boldly blotched with deep red-brown, while there are also a few lines of the same colour. The underlying marks, of dark grey, are unusually conspicuous.

In shape the eggs are very broad ovals, almost spheroidal, having a very close, fine texture and a distinct gloss.

They are small for true *sinensis*, measuring 16.4 to 16.9 and (one) 18.0 mm. in length and 13.8 to 14.5 mm. in breadth. Partridge, my collector, who shot the bird, says that he particularly noticed "it had not a black bill like the Assam birds."

(238) *Chrysomma altirostris griseigularis* Hume.

THE ASSAM YELLOW-BILLED YELLOW-EYED BABBLER.

Pycnorhis altirostris griseigularis, Fauna B. I., Birds, 2nd ed. vol. i, p. 236.
Chrysomma altirostris griseigularis, ibid. vol. viii, p. 602.

This Babbler seems to be confined to the immense expanses of grass, *ekra* and reed found all along the foot-hills of the Himalayas from Bhutan to the East of Assam, where it is common, and thence to the grass-plains of the Surrma Valley, where it is rare. As I have already mentioned, it is doubtful where this bird and the preceding meet, but Harington considers the birds obtained by him at Bhamo, in Upper Burma, are nearer to this race, though they are somewhat intermediate between the two. More material may enable one to distinguish yet a third race. In North Lakhimpur it is very common but I never saw it except in very long grass or reeds, where it skulks about, constantly flitting from one reed to another, but every now and then, possibly only in the breeding season, mounting to the top of one of the highest reeds and there pouring out his jerky but sweet little song of half a dozen notes before once more tumbling down into the lower reeds. So far as I have experienced it breeds only in tall elephant-grass or reeds and my nests were taken when after buffalo. When so engaged, mounted on an elephant, the birds allowed a very close approach and the nest was found by the bird flying off it as the elephant actually brushed against the tuft of grass on which it was built. There were two eggs in the first nest seen but, although we spent all next day trying to find more nests and the birds were common, we neither found nests nor



PELLORNEUM RUFICEPS RUFICEPS.

The Southern Spotted Babbler.

(Mahableshwar, 1922.)

saw any signs of their breeding. In July 1908 Stevens found them building at Diyu and obtained a nest which he sent me, and the next year a Miri Constable, who was with me when I found my first nest, was deputed to work the same ground from an elephant after the Rains had broken. In June he obtained one nest with two eggs, found empty nests and many birds carrying materials, and in the first week of July found three nests with two and three eggs.

The nests are all much alike; the one first taken by me was a very short inverted cone and, later, I saw one or two similar-shaped ones, but most were cups, very deep, but not prolonged at the base. They were in other respects quite typical of the genus, beautifully finished off nests, made of fine shreds torn from dead blades of elephant-grass, plastered over in the usual way with cobwebs and all so tightly drawn that it is difficult to understand how the frail little birds could pull the strips so tight. The lining was made of very fine fibre, probably torn from the roots of the *ekra*, every fibre exactly in its place and none projecting over the edge. Most nests—we saw many, if the empty and half-built ones are included—were built on single, stout stems of *ekra*, at the junctions of the leaf-blades with the stems or just above where the stems split into two or three branches. Only a few nests embraced more than one stem of grass or *ekra*, and in all these instances the stems were much thinner.

There seems no doubt that the normal breeding-time of this little bird is after the Rains have well started, for I have worked the right ground for them from the 20th and 25th May without finding a nest, so that taken on the 28th April may be considered abnormal.

All my nests have contained two or three eggs only, but one would imagine four or five to be the full clutch.

The eggs follow the same types as do those of the other Yellow-eyed Babblers and are very beautiful and striking. One pair in my collection, of a variety not represented elsewhere, is a deep salmon-pink, faintly blotched with rather deeper salmon-red. The likeness of all my eggs to those of the genus *Alcippe* is very striking.

Fourteen eggs average 18.1×14.6 mm.; maxima 18.6×14.5 and 18.2×15.0 mm.; minima 17.6×14.8 and 18.1×14.2 mm.

Pellorneum ruficeps.

THE SPOTTED BABBLER.

(240) Pellorneum ruficeps ruficeps Swainson.

THE SOUTHERN SPOTTED BABBLER.

Pellorneum ruficeps ruficeps, Fauna B. I., Birds, 2nd ed. vol. i, p. 238.

This race of Spotted Babbler is found over the whole of Southern India except South-West India, including Coorg, Wynaad, South-

West Mysore and Travancore. North it extends to the hills of Chota Nagpore and to Mahableswar, where it was found breeding by Mr. W. A. Pain.

Its breeding haunts are practically any good cover other than heavy grass. Miss Cockburn says she has "only known them to frequent small woods and brush-wood, a little higher than the elevation of the Coffee Plantations" on the Nilgiris, but Davidson (Barnes's 'Birds of Bombay,' p. 242) noted for Barnes: "This bird is common in the Kanara jungles, and I have noticed it through all the hill parts of Nassik. It breeds in April and May in Kanara, making its nest on the ground in thick evergreen jungle, where there is no grass. The nest is a large ball of leaves with the entrance at the side. The number of eggs I have found have always been either two or three." Elsewhere (Journ. Bomb. Nat. Hist. Soc. vol. xi, p. 652, 1898) Davidson says the nests are placed on the ground, generally without any cover.

Miss Cockburn gives a description of the nest in the Nilgiris which differs considerably from most Spotted Babbler's nests:—"Three nests of these birds were found in the months of March and April 1871. The first was placed upon the ground, close to a bush. The nest, consisting of dry leaves and grass, appeared to be merely a canopy for the eggs, which were almost on the bare ground, having only a very few pieces of straw under them. The second nest was built in the same way under a bush. The third nest was constructed under a large stone and with the same materials." The last nest contained two young, the others each three eggs.

So far as is recorded, and judging from the few eggs in my collection, the breeding season in the Nilgiris and Palni Hills is from February to the middle of April, while in the Bombay Presidency it is the middle of April to the middle of June, in which latter months Davidson obtained nests and eggs in Kanara. In the North of the Central Provinces Osmaston took nests with three eggs each at Pachmarhi on the 1st May and 2nd June, both "among dead leaves on the ground of steep banks in dense forest by streams."

The eggs number two or three only. The ground is white, sometimes very faintly tinged with dull cream or equally dull pale grey-green, whilst the markings consist of innumerable small specks, spots and blotches of brown. This brown varies from a dark reddish-brown to a chocolate-brown and in nearly all eggs the secondary specks of lavender are equally numerous and have a distinct effect on the general tint of the eggs. As a rule the specks and spots are numerous everywhere, sometimes very dense, but in most they are appreciably more dense at the larger end and in a few they form a ring or cap. Occasionally the blotches are larger, fewer and richer in colour. One clutch taken by Osmaston has a very purplish tinge owing to the secondary markings

being very thick and confluent at the larger end. These eggs could be matched in colour by Bulbuls' eggs of the genus *Otocompsa*.

Twenty-one eggs average 21.6×16.2 mm.: maxima 23.0×17.0 mm.; minima 20.0×15.8 and 22.1×15.1 mm.

In shape they vary from broad ovals very little compressed to rather narrow ovals strongly compressed and almost pointed at the smaller end. The texture is neither very fine nor very close and the shell is decidedly fragile for the size of the egg. Most eggs are quite glossless but here and there a clutch shows a certain amount.

(241) *Pellorneum ruficeps subochraceum* Swinhoe.

THE MALAYAN SPOTTED BABBLER.

Pellorneum ruficeps subochraceum, Fauna B. I., Birds, 2nd ed. vol. i, p. 239.

Within our limits this Babbler is resident and breeds from Tounghoo and the Karen Hills to the Malay Peninsula, whilst it is found outside our boundaries in Siam, Annam and Cochin China. North of Tounghoo it extends some distance, and the Southern Shan States birds should certainly be referred to this race and, probably, the Bhamo Hills birds also.

This race, according to Oates, "is found in every description of jungle, in gardens, orchards and compounds." In forest, however, it seems to keep much to the more open parts, and dense undergrowth seems to be of much less importance than a sufficient amount of fallen débris.

The nest is a ball of leaves and grass, more often of bamboo-leaves than any other material, whilst the lining, if any, is of finer grass, or smaller bamboo-leaves. Two nests found by Bingham near Thongyin had no lining at all, but a nest obtained by Oates in Pegu which was made entirely of bamboo-leaves was "sparingly lined with grass," whilst one found by Davison was lined with fine roots and fibres.

The nests are very loosely put together and cannot even be picked up off the ground, on which they seem to be invariably placed, generally half or more buried among the fallen leaves and débris.

Eggs have been taken from the 10th March (Harington) up to the 29th June (Oates), but May seems to be the month in which most eggs are laid. A very full description of the eggs of *P. r. mandelli* is given and this covers every type of egg of the species, and all the subspecies lay exactly the same types of eggs.

Thirty eggs average 21.0×15.8 mm.: maxima 14.0×17.0 and 22.5×17.5 mm.; minima 18.8×14.3 mm.

(242) *Pellorneum ruficeps granti* Harington.

THE TRAVANCORE SPOTTED BABBLER.

Pellorneum ruficeps granti, Fauna B. I., Birds, 2nd ed. vol. i, p. 240.

The present bird, which is a richly coloured form of the typical race, is found in the Wynaad, Coorg, S.W. Mysore and Travancore.

According to Bourdillon, this bird is one of the forest and jungle and not of gardens and compounds, and practically nothing is known about its nidification. Two clutches of eggs given me by Stewart were taken from nests which were "balls of bamboo leaves with a scanty lining of fibres, placed on the ground and nearly buried in the surrounding mass of fallen leaves and twigs. They were taken on the 7th June and 12th of May and contained four and three respectively. They were placed in open forest."

The eggs are just like those of *P. r. mandellii*, and the seven average 21.9×16.3 mm.

(243) *Pellorneum ruficeps mandellii* Blanf.

THE ASSAM SPOTTED BABBLER.

Pellorneum ruficeps mandellii, Fauna B. I., Birds, 2nd ed. vol. i, p. 240.

The Assam Spotted Babbler is found from Nepal and Sikkim to the extreme East of Assam, both North and South of the Brahmapootra River. The Manipur birds are intermediate between *minor* and *mandellii* but may be placed with the latter. It may also occur in the extreme North of the Chin and Kachin Hills. Harington, whom I followed in the 'Fauna,' states that it re-occurs in the Bhamo District and Shan States, although divided from the Assam birds by the intervening *minor*. These Bhamo birds are *not* very typical *subochraceum*, yet, I now think, are nearer to that form than to *mandellii*, as we should naturally expect from their geographical position. The Assam Spotted Babbler breeds in the Himalayas to a considerable height, its nest having been taken at 6,000 feet by Osmaston and at 4,000 feet by Mandelli. Stevens, however, says "mainly confined to the Terai of the foot-hills but occurring in the Teesta Valley up to 3,800' (Shaw)." In Assam, North of the Brahmapootra, it is found all over the plains and in the hills up to 3,000 feet and possibly higher, but in the Surma Valley its haunts are between 2,000 and 3,000 feet, though I have taken its nest at 5,000 feet, and it certainly breeds right down to the foot-hill though not in the plains.

Both at the breeding season and at other times its favourite haunts are very thin open forest, bamboo-jungle, thin scrub and grass mixed, or cultivation which has been recently abandoned and which has only just begun to revert to nature. Of all these,

however, it prefers a glade in open forest or an open space in bamboo-jungle, where here and there a few thin wisps of grass or a straggling bush alone show above the ground, the whole of which is covered with a dense mass of fallen leaves and twigs. Here it makes its nesting-site, not using the tufts of grass or the bushes as semi-protection for its nest, but placing it among the fallen leaves, where it looks like nothing more than an extra little mass of the débris which surrounds it. Often it is completely hidden, and the first one knows of its presence is the appearance from among the dead leaves of a little lark-like bird which slopes along for a yard or two and then disappears with the same mysterious suddenness as that with which it has appeared. A little search will disclose a very poor attempt at a nest. Just a little ball of leaves or grass with a mock lining of a few roots, and that is all there is to it. It suffices, however, for its purpose, and though it falls to pieces when one attempts to pick it up, the surrounding leaves keep the nest in shape, while, marvellous to relate, it seems quite waterproof, the uppermost leaves being placed so cleverly across one another that any but the heaviest rain falls off it and trickles away into the rubbish round about it. Sometimes the nest is semi-domed and, in some hundreds of nests, I have seen a few which were merely deep cups placed slanting on their sides. In these cases, however, the nests were placed in bamboo-jungle and in piles of débris so dense that this furnished a sufficient dome to keep off rains, wind and light. Rarely the nests have better linings of roots, grass and thin yellow tendrils of little yellow *Convolvuli*, forming a cup within the bundle of bamboo-leaves constituting the real nest.

These birds seem very fond of making their nests alongside Gour, Buffalo or Elephant tracks, and must live in constant terror of some animal stepping a few inches aside and smashing up home and occupants. Most of my nests have been found by me when after big game, the birds leaving their nests only when my feet were within a few inches of them.

The nests are difficult to measure but are somewhere between six and eight inches in their longer diameter and between four and six in their shorter. They are oval in shape and generally placed slanting to the ground but, sometimes, quite upright.

The regular breeding season is April and May but I have taken eggs late in March and early in July, the latest being on the 27th of that month.

They lay three or four eggs and, exceptionally, five, which do not vary very greatly. The ground is white, generally pure but sometimes tinged with buff or, more rarely, with greyish-green, and they are marked with red-brown, brown, purplish-brown or blackish-brown. These markings generally consist of specks and very small blotches scattered profusely over the whole surface of the eggs but, in most instances, more numerous at the larger

end, where the blotches are also sometimes rather bigger. In some eggs the markings form indefinite rings or caps at this end and, in a few eggs only, they are sparse elsewhere. Occasionally one finds a clutch with all the blotches larger and less numerous, considerably enhancing their appearance. In most eggs the secondary, or underlying, blotches of grey or lavender are numerous and, in a few, show up enough to influence the general tint of the egg. Many eggs of the redder type are extraordinarily like Bulbul's eggs but the texture is coarser, not so close, and the surface glossless or nearly so. They are fragile eggs in comparison with their size.

Two hundred eggs average 22.4×16.3 mm.: maxima 24.9×16.1 and 21.7×18.8 mm.; minima 20.5×16.1 and 20.6×15.3 mm.

(244) *Pellorneum ruficeps jonesi* Stuart Baker.

THE SIMLA SPOTTED BABBLER.

Pellorneum ruficeps jonesi, Fauna B. I., Birds, 2nd ed. vol. i, p. 241.

This bird was described from a specimen obtained by A. E. Jones at Kalka, in the Simla States, since when it has been found in Garhwal and Dehra Dun, in the latter district between 2,000 and 3,000 feet.

Osmaston says that it is a very common bird round about Dehra itself in the wooded ravines and in the Tea-gardens.

It appears to be a bird of heavy forest. One nest, with four much incubated eggs, was found by Osmaston on the 24th April, and on the same date he saw young ones which had left the nest. They must, therefore, sometimes be very early breeders. Two other nests found by Osmaston on the 4th May and 2nd July were placed on the ground on steep banks in dense forest. They are described as domed, with large lateral entrances and made of dry grass and dead leaves with no lining. A third and fourth nest taken by Betham on the 10th and 27th June, with three and one egg in them, were placed in similar forest, but he describes them as "well finished off and lined."

The eggs are like those of *P. r. mandellii*, and ten average 21.4×16.2 mm.

(245) *Pellorneum ruficeps minor* Hume.

THE BURMESE SPOTTED BABBLER.

Pellorneum ruficeps m^r Fauna B. I., Birds, 2nd ed. vol. i, p. 242.

This race of Spotted Babbler is found in the Upper Chindwin, Chin Hills, Arrakan and the whole of Western Burma to Thayetmyo. It is possible that the Sittaung forms its Eastern boundary, but its

distribution West of this river and East of the Irrawaddy has not been proved. It certainly occurs in the Popa-Meiktila districts, but South of these its status is uncertain.

Hopwood and Mackenzie took numerous nests of this subspecies up to 4,500 feet in the Chin Hills, apparently both in construction and site exactly like those of the Assam Spotted Babbler and, like that bird, it lays three or four eggs, more often the former than the latter.

Forty eggs average 21.5×16.4 mm.: maxima 24.0×17.0 and 21.0×17.5 mm.; minima 20.0×15.8 and 20.5×15.2 mm.

The average includes twenty-two eggs measured by Mr. J. M. D. Mackenzie.

In the Chin Hills most birds breed in April, a few continuing into May, whilst in Popa Macdonald obtained nests in May and June.

Specimens which appear to be typical *minor* or *mandellii* appear, with unpleasant frequency, each in the normal area occupied by the other, and often at considerable distances from the boundary lines where we would naturally expect to find many specimens intermediate between the two. For the present, and for convenience sake, I keep the subspecies as defined in the 'Fauna,' only correcting their various areas in so far as this is possible with the added material now available. Collectors in all parts of Burma should, however, bear in mind the fact that more specimens of this very common bird are badly wanted in the British Museum.

(246) *Pellorneum palustre* Jerdon.

THE MARSH SPOTTED BABBLER.

Pellorneum palustre, Fauna B. I., Birds, 2nd ed. vol. i, p. 242.

The Marsh Spotted Babbler has so far only been found in the plains of Assam and the upland grass-hills of North Cachar, running between 1,000 and 2,500 feet.

Stevens found it common in Lakhimpur both North and South of the Brahmapootra, while I obtained several specimens in North-West Lakhimpur at Dimagi. Further West than this it does not seem to occur North of the Brahmapootra. This Babbler haunts the great tracts of reeds and coarse high grass alongside swamps and rivers and, though it is very common, it is such a skulker that one seldom sees it. Its call, "chi-chew," is constantly heard, giving warning of its presence, but I found it very hard to obtain specimens. In North Cachar I found it not rare in the grass-covered plateau near the Hot Springs. Here it kept much to the longer growth of *ekra* and elephant-grass growing in the hollows between the rolling hills, where there was nearly always a certain amount of water, either stagnant or running. The

nests I came across were always found by accident whilst after Buffalo and Gour; wounded animals would take me after them through this dense growth of grass and, more than once, I have seen the bird fly from its nest as I approached. Once I found the nest in quite short sun-grass about two feet high on the crest of a rounded hill, but more often they bred in the *ekra* and elephant-grass in the hollows, not quite at the bottom, where there was nearly always mud and water, but a little way up the sides of the hill where it was dry under foot. The nests were typical Spotted-Babbler's nests, just balls of grass, lined with rather finer grass or a few *ekra* roots and built practically on the ground among the roots of the tangled growth. They were well hidden and, even when the birds gave away their presence by their constant little calls, would have defied being found by design, as they were always more or less covered by the matted roots and fallen stuff. Other nests taken at Dimagi and Lakhimpur, and one below Cherra, where the bird was first discovered, were in similar situations, though in stretches of *ekra* and grass far greater in extent than those in North Cachar. It is true the three or four found were all on the outskirts of these huge areas, but the birds could be heard calling in the interior of them, and they may have bred there also.

The eggs are just small replicas of those of *Pellorneum r. mandellii*, and fourteen average 20.6×15.7 mm.: maxima 22.0×17.0 mm. (a large double-yolked egg); minima 19.3×14.9 mm.

The breeding season is, I think, from the beginning of June onwards, after the Rains in Assam have first broken; one nest, however, was taken at Lakhimpur, near the Rangagora River, on the 22nd May.

Pellorneum ignotum.

THE PLAIN BROWN BABBLER.

(247) *Pellorneum ignotum ignotum* Hume.

THE ASSAM PLAIN BROWN BABBLER.

Pellorneum ignotum ignotum, Fauna B. I., Birds, 2nd ed. vol. i, p. 243.

The Plain Brown Babbler is found throughout the hills of South Assam and, probably, also Manipur up to at least 6,000 feet. It occurs in Winter down to the foot-hills but does not, I think, ever breed in the plains or, indeed, below about 3,000 feet. It has been obtained in Sadiya and Stevens found it considerably West of this at Diyu in November, so that it quite possibly extends along the unknown as much farther West of this.

At the lower elevations this Babbler keeps almost entirely to bamboo-jungle, both open and dense, and to scrub- and bush-jungle or the secondary growth of old cultivation clearings. Of these three, bamboos are the favorite, and of bamboos the dense clumps

of small bamboo are preferred to the others. Higher up, where there are fewer bamboos available, it breeds in secondary jungle and in thin bush-jungle on the outskirts of forest or, occasionally, actually inside the forest.

The position selected for the nest is most often in among the dense masses of small twigs growing from low down on the bamboo-clumps, below where the bamboos all separate from one another. Here they are placed at any height between two and four feet from the ground, seldom lower and equally seldom higher. Sometimes they are built among the thick clusters of Raspberry and Blackberry vines, or in creepers growing over bushes and tangled herbage of all kinds. Occasionally I have found them in thick clumps of *ekra*, grass or weeds, and in these latter cases they are sometimes placed within a few inches of the ground. Under no circumstances, however, are they built on the ground, like those of the Spotted Babbler group. Unusual places from which I have taken nests have been from the inside of bamboo-clumps, deeply covered by all the fallen leaves and spathes; once from a bush in thin grass and once from a Daphne-bush growing in Pine forest.

The nest is typical of the genus but is better made, the grass- and bamboo-leaves being woven tighter and more neatly and the lining more copious. Moreover, the nest of this bird is not *always* domed. I have seen several semi-domed and a few just very deep cups, the depth greatly exceeding the width.

The little birds are very tame and confiding and quite unlike *Pellorneum ruficeps* in this respect. One nest we found was built beside a path leading from my camp to the river where we drew our water, and as it was a cup-shaped nest and built right on the top of some Raspberry vines, we could easily see in as we passed. At first the owner would fly off the nest if we stopped and looked at her but, after a few hours, she sat on quite happily as the coolies and others went constantly up and down for water.

The breeding season lasts from May to July, but I have taken eggs as early as the 15th May.

Both sexes assist in building the nest and both take part in incubation, as I have caught both sexes on the eggs. Incubation takes thirteen days.

The eggs, which number three or four, very rarely five, are, in shape and texture, like those of the Spotted Babblers, but in colour are very different and are much more handsome. The ground varies from a pale cream to a warm brick-colour, and this is profusely covered by speckles and tiny blotches of brick-red. In some eggs the blotches are so numerous that little of the ground-colour is to be seen and the eggs look almost uniform deep brick-red. A few eggs have the markings much more sparse and less deep in tint, sometimes with a livid tinge; most eggs are about half way between these two extremes. There are many secondary spots and speckles of pinkish-lavender but, as a rule, these are

hardly discernible without a glass. Many eggs have a broad ring of spots, almost coalescing, at the larger end, whilst a few have caps. A very beautiful set has the markings consisting of minute speckles of lilac-red, these forming wide rings in two eggs, and in the third a lavender-pink cap at the larger end; elsewhere the markings are much less numerous.

Two hundred eggs average 20.0×15.1 mm. : maxima 22.8×15.5 and 21.1×15.9 mm. ; minima 18.2×14.1 mm.

(248) *Pellorneum ignotum cinnamomeum* Rippon.

THE SHAN PLAIN BROWN BABBLER.

Pellorneum ignotum cinnamomeum, Fauna B. I., Birds, 2nd ed. vol. i, p. 244.

This Babbler has been found in the Kachin Hills, Bhamo Hills and Shan States. Robinson and Kloss also record it at Dran, in Annam, so that it is sure to occur at suitable places between these two points. To the West Mackenzie and Hopwood obtained it breeding in the North Chin Hills.

Harington first found it breeding at Sinlum Kaba, in the Bhamo Hills, but reported it as rare, though since then Grant, Wickham and others have taken many nests, and consider the bird to be a common one.

The nests have been described by many collectors but, curiously enough, I can find no description of the country it inhabits, and the following summary is from notes supplied me by Mackenzie, Pershouse and others and sent me with eggs. They apparently do not haunt deep evergreen forest but, with this exception, may be found in almost any kind of cover between 3,500 and 7,000 feet, more often between 4,000 and 5,000 feet. Perhaps they prefer thin secondary growth, scrub- and bush-jungle and open bamboo-jungle, building in any of these. Pershouse, who obtained four nests in April and May at Sinlum, says: "I took two nests at Sinlum Kaba at about 500 ft.; one was on the side of a bank and one on the ground near a foot path, both being concealed in a thick tangle of grass, in the more open, or in what I should call the lesser jungle of trees, bamboos etc. The country at Sinlum is very varied; there is dense tree forest and lesser and more open tree forest; there is scrub jungle with patches of bamboo and there is one small tract all bamboo, whilst there are large open areas of bracken and white raspberries, dotted here and there with small ponds and patches of marshy ground with rushes etc. Of course there is also some secondary growth in abandoned cultivation."

As regards the nest, this is very similar to that of the last bird, and is nearly always placed well off the ground in bushes, bamboos or long grass. Harington describes one nest as being "placed

in long grass, about two feet from the ground, under some overhanging bamboos, domed shape, made of woven grass, and reminded one rather of a Suya's nest." Mackenzie obtained one nest "on the ground built into the roots of a tree from which the soil had been washed away," but he says that "the nest is generally in the lowest branches of a thickish bush 1' to 4' high, being worked in with the grass around, if there is any. The nest is built of grass with a foundation of bamboo leaves and a lining of moss roots and is nearly always domed, often very slightly."

The eggs, which number two or three, very rarely four (Mackenzie took one of this number in the N. Chin Hills), are like those of the preceding subspecies but, as a series, they are rather paler, many eggs being more terra cotta than brick-red in general appearance, whilst the pale violet-pink type so rare in *cinnamomeum* is more common in this.

Fifty eggs, including 22 taken by J. M. D. Mackenzie, average 20.4×15.0 mm. : maxima 21.5×15.0 and 21.1×15.9 mm. ; minima 18.5×14.7 and 21.3×14.4 mm.

Pellorneum fuscicapillum.

THE CAPPED BABBLER.

(249) Pellorneum fuscicapillum fuscicapillum (Blyth).

THE BROWN-CAPPED BABBLER.

Pellorneum fuscicapillum fuscicapillum, Fauna B. I., Birds, 2nd ed. vol. i, p. 245.

This Babbler is confined to the island of Ceylon, and is found over the whole of the Southern, Central and wet Western areas, being replaced by a paler form, *babaulti*, in the driest Northern regions.

The Brown-capped Babbler keeps "almost entirely to thick scrub, low jungle or the undergrowth of forests" (Wait). Legge's description of the nest seems to have been based on some mistake, now rectified by Wait and Tunnard, who have taken several nests.

Wait says: "My nest was domed and very cleverly camouflaged in a litter of dry leaves on the ground in the forest. The opening was at one side and the materials were very roughly put together. The lining consisted of a few broken-up dead leaves and the roof of a few more dry leaves."

Tunnard describes three nests taken by him. Of these one was semi-domed, with a large entrance on one side, composed of dried leaves, a few grasses and the mid-ribs of leaves, with a very scanty lining of black and yellow fibres. This nest was placed in a decayed hollow in a tree about a foot from the ground. Of the other two nests, one was domed and the other semi-domed, and

both were made almost entirely of skeleton leaves, lined with a little grass and fibre. Both of these nests were placed on the ground and all three were built in strips of jungle running through a Tea estate, one strip being along a ravine. The nests were beautifully hidden and, though the bird flew from Tunnard's feet as he almost trod on the nest, it took him, even then, quite a time to locate, being all hidden in leaves. The nests were so badly put together that they fell to pieces directly they were handled. Tunnard describes the birds as extremely tame, hopping about quite close by as he examined the nests. The nests were taken at an elevation of 2,800 feet. The breeding season, according to Wait, is from November to March and again in September. Two nests were also taken by Tunnard in April.

The eggs generally number two only, though in one nest Wait found three. They are exactly like the eggs of *Pellorneum ruficeps* (the Spotted Babbler), perhaps on an average a little longer in proportion to their length.

Ten eggs average 22.2×16.2 mm.: maxima 22.9×16.0 and 22.2×17.1 mm.; minima 21.7×15.3 mm.

(251) *Pellorneum nigricapitatum* (Eyton).

THE BLACK-CAPPED BABBLER.

Pellorneum nigricapitatum, Fauna B. I., Birds, 2nd ed. vol. i, p. 246.

Since Davison wrote his notes, quoted by Hume, nothing more seems to have been learned as to the nidification of this bird. He writes:—

I got one nest of this bird at Klang. I was passing through some very dense jungle, where the ground was very marshy, when one of these birds rose from the ground, about two feet in front of me, and alighted on an old stump some few feet away. On examining the place from which the bird rose, I found the nest placed at the base of a small clump of ferns, and concealed by a number of overhanging, withered fronds of the fern. The base of the nest, which rested on the ground, was composed of a mass of dried twigs, leaves etc.; then came the real body of the nest, composed of coarse fern-roots, the egg-cavity being lined with finer roots and a number of hair-like fibres. It looked compactly and strongly put together but, on trying to remove it, it all came to pieces. When the bird saw me examining the nest it fluttered to within a couple of feet of me, feigning a broken wing to try and draw me away. The nest contained only two eggs, which were slightly set."

Hume describes the eggs as "extremely regular ovals, scarcely smaller, if at all, at one end than the other. The shell is very fine and fragile, but has only a slight gloss. The ground-colour appears to have been creamy white, but the markings are so thickly set

that little of this is anywhere visible. First, pale inky spots and clouds are thickly sprinkled over the surface, and over this the whole egg is freckled with a pale purplish brown."

The two eggs, now in the British Museum, measure 20.8×15.7 and 20.8×16.0 mm.

Pellorneum tickelli.

THE STRIPE-FRONTED BABBLER.

(252) *Pellorneum tickelli tickelli* Blyth.

THE BURMESE STRIPE-FRONTED BABBLER.

Pellorneum tickelli tickelli, Fauna B. I., Birds, 2nd ed. vol. i, p. 247.

The range of this Babbler includes all the hill-tracts South of Assam but not East of the Sibsagar District. It is found all through Western Burma to Tenasserim and has been recorded from Karenni. Robinson and Kloss have separated the Malay form under the name *australis* and this form may enter Tenasserim in the South.

Very long ago Bingham thought he found the nest of this Babbler in Tenasserim but, since then, no one else has come across it until I found it common and took many nests in North Cachar. Bingham's reputed eggs are, however, so small that they cannot have belonged to this bird.

These Babblers are the most efficient of skulkers, haunting bamboo-jungle, scrub, bush and secondary growth as well as both open and deep forest. For breeding purposes they like best of all little open glades, by streams, which break the long stretches of forest. Here, perhaps for a length of two or three hundred yards, or even less, the banks are bereft of the big trees and bracken; brambles and bushes cover them in patches. Sunlight and air can pour in everywhere, and insects, berries and fruit are plentiful. If bamboos are handy the nest will be placed in one of these at the edge of the glade; if not, it will be built in one of the briars, but it is never placed on the ground. The nest varies a good deal; most are domed, but many are semi-domed and a few are merely very deep cups. They are true *Pellorneum* nests but much more compact, tidy and well built than any of those of the preceding birds. The materials of which they are composed are the same, generally bamboo-leaves and grasses, but the shreds of bamboo-leaves are finer and narrower and the grasses are also finer and stronger—more stems and fewer blades. With the better materials we have better workmanship, and the grasses etc. are so well twined and interlaced that the nest stands much handling and will remain a nest long after removal. The lining is scanty, generally a few fine grasses only, but it is well and neatly arranged. Most nests are placed only two or three feet from the ground, some

four or five, seldom more, and I do not think they are as well hidden as the nests of the Spotted Babbler group.

They breed at all heights up to 7,000 feet, but are most numerous between 3,500 and 4,500 feet, while I have taken no nests below about 3,000 feet. The regular breeding season is April, May and June, but I have taken fresh eggs as late as the 29th of July, which may have been a second laying.

The eggs are of the *Pellorneum* type but, whilst those of the *ignotum* group give one the impression of being brick-red eggs and those of the *ruficeps* group appear brown, these, when seen as a series, give one the impression of being dull olive-brown eggs.

The ground-colour is a very pale olive-grey or olive and they are densely covered with freckles or small blotches of reddish-brown or olive-brown, the distribution of the spots much the same as in other *Pellorneum* eggs, but the blotches themselves not so well defined. In a few the blotches are so faint that the eggs look almost uniform pale olive when viewed at a short distance.

Two hundred eggs average 20.3×15.7 mm. : maxima 22.3×16.3 and 21.2×16.6 mm. ; minima 19.0×15.3 and 20.3×15.0 mm.

Both sexes take part in incubation.

(253) *Pellorneum tickelli assamensis* (Sharpe).

THE ASSAM STRIPE-FRONTED BABBLER.

Pellorneum tickelli assamensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 248.

The area occupied by this bird is much smaller than that of the Burmese form. It is very common in the Lakhimpur district of Assam both North, South and East of the Brahmapootra Valley. It certainly occurs in the Patkoi-Naga Range, and spreads West into the hills North of Tezpur and South of Sibsagar but, beyond this very restricted area, we do not know what its range is either East or West.

In its breeding life it differs in no way from the preceding bird except that it is found well out into the plains as well as in the hills, which to the East of Margherita run between 5,000 and 7,000 feet. Both Dr. Coltart and I found several nests in the broken country round the Tea-gardens covered with high scrub and also sometimes in open bamboo-jungle.

Coltart was the first collector to find its nest. In this instance it was built in scrub-jungle and the nest, not having been kept, I can only describe from memory. In shape it was a very deep cup, the depth considerably exceeding the width, and it was made entirely of fine grass-stems, quite well put together, so that the nest was compact enough for us to handle freely when examining it. It was placed low down in one of the thick bushes, about six inches to a foot from the ground.

Most of the nests we found later were placed either on the ground or within a few inches of it, a few only in bushes a foot or so above it, but otherwise as above described.

The eggs are like those of the Burmese subspecies but average a good deal paler, and many are rather longer in shape. The 'pale olive type, which is quite exceptional among the eggs of *P. t. tickelli*, are decidedly more numerous among the eggs of this bird.

Three eggs are laid more often than four.

Sixty eggs average 19.9×15.7 mm. : maxima 21.6×16.2 and 20.5×16.8 mm. ; minima 18.1×14.8 mm.

It is an early breeder and most birds lay in April, whilst Dr. Coltart took one nest with four eggs on the 26th March. On the other hand a good many birds lay in May, and we have taken odd nests during the first week of June.

Napothera brevicaudata.

THE SHORT-TAILED WREN-BABBLER.

(256) *Napothera brevicaudata striata* (Blyth).

THE ASSAM SHORT-TAILED WREN-BABBLER.

Turdinulus brevicaudatus striatus, Fauna B. I., Birds, 2nd ed. vol. i, p. 251.

Napothera brevicaudata striata, ibid. vol. viii, p. 603.

This quaint little bird, more like a Wren than a Babbler in superficial appearance, shape and in many of its ways, is confined to Assam and Manipur. It occurs in Lakhimpur South and North of the Brahmapootra but Stevens did not come across it West of the Subansiri, and probably this or the Dibong will prove to be the boundary.

It is a most secretive little bird, quiet and retiring more than skulking, haunting deep, wet, broken forest between 3,000 and 7,000 feet, where it runs ever in and out of the great moss-covered boulders, very active and quick on its legs but very loth to fly and, if startled, always scurrying away on its legs into cover rather than seeking safety by flight. It *may* sometimes frequent types of jungle other than the deep forest though I have never seen it in them but, on the other hand, I have hardly seen the bird except round about its nest, watching the latter until one of the pair returned to it, got noosed, examined and once more released.

The nest is nearly always placed on the ground, generally in between boulders, but sometimes it may be built in a hollow in the face of a pile of boulders and rocks. At other times it may be wedged in among the roots of a tree or just on a mossy bank with no special protection other than the ferns and weeds growing about it. Always it is well hidden and always it is in a damp situation, often so wet that the nest outside the lining is quite sodden.

In shape the nest is domed, or nearly so, and is made of dead leaves, dead grass, semi-decayed bracken and fern-fronds, a few wisps of grass and moss bound together with fine roots. The lining is also of dead leaves, but the innermost of these are dry, though the whole nest is like a little steamy oven. The position is upright, the entrance near the top, whilst in some cases the top is open except for a certain amount of material from the prolonged back, which forms a canopy over it. In size the measurements are, roughly, about 7 by $4\frac{1}{2}$ inches wide externally, the egg-cavity being about 3 inches across. It is quite well put together, but the rotten condition of the material makes the whole drop to pieces when handled.

Both birds take part in incubation, for we caught the male on the nest quite as often as the female. They are not nervous of being watched if one keeps absolutely still, but the slightest movement sends them into cover. When the nest is found they slip quietly off it but keep close by, the two birds running about within a few yards until they think it is safe to return, when one or the other slinks back whilst the remaining bird resumes its occupation of feeding.

The birds breed during May and June, a few laying in the latter half of June and the first few days of July.

The full complement of eggs is three or four. The ground is generally a pure china-white, rarely with a faint pink tinge, and they are spotted and blotched freely, but not thickly, with deep red-brown or dark brick-red, the markings rather more numerous at the larger end.

I have one clutch of three with a pinkish ground and numerous freckles of pinkish-red, denser and forming little caps at the larger extremity. Another clutch is white with faded pink spots. The secondary markings are few or entirely absent, but in one or two eggs show up as inky-grey blotches at the larger end.

In shape the eggs are broad blunt ovals, the smaller end very slightly compressed, some eggs looking like short ellipses. The shell is stout and the texture close and hard, often with a fine gloss.

Thirty eggs average 21.3×16.0 mm. : maxima 22.0×16.0 and 21.0×16.8 mm. ; minima 19.2×15.6 and 19.3×15.1 mm.

(257) *Napothera brevicaudata venningi* (Harington).

THE SHAN STATES SHORT-TAILED WREN-BABBLER.

Turdinulus brevicaudatus venningi, Fauna B. I., Birds, 2nd ed. vol. i, p. 252.

Napothera brevicaudata venningi, ibid. vol. viii, p. 603.

Venning's Wren-Babbler is found from the South Shan States to Yunnan.

I can find no record of this bird's breeding, but it will certainly

be very similar to that of the last bird, though it may breed at lower elevations, as Rippon obtained it on the Salwin at 2,800 feet.

Cook took its nests in the Southern Shan States but, in sending me eggs, only writes: "The nest is exactly like what you described in the Bombay Journal for your Assam bird."

The two nests were taken on the 13th February and 14th April. Each contained two eggs.

These two pairs of eggs, now in my collection, are like those of the preceding bird but larger, and average 22.7×17.0 mm.; one of them is 24.6×17.2 and the smallest 21.5×16.8 mm.

(258) *Napothera roberti roberti* (Godw.-Aust.).

THE CACHAR SMALLER SHORT-TAILED WREN-BABBLER.

Turdinulus roberti roberti, Fauna B. I., Birds, 2nd ed. vol. i, p. 253.

Napothera roberti roberti, ibid. vol. viii, p. 603.

As its name infers, this little Babbler is restricted in its range to the hills of Cachar and other ranges South of the Brahmapootra. South it is found in Manipur and it certainly occurs in the Naga Hills but does not extend far East, as birds from the Patkoi-Naga Hills are all of the next race.

It breeds over all its range between 4,000 and 6,000 feet and sometimes down nearly to 3,000 feet, as it was common in the valleys of the Barail Range at a little over this elevation. In all its ways it is a small copy of its larger cousin the Assam Short-tailed Wren-Babbler. Most of my nests were found as the birds slipped out of them when I was only a few feet away, and we saw few birds that were not first noticed in this manner. They are very tame, confiding little birds, although such inveterate hidiers in the densest forest. They often haunt and nest in tiny open patches in these forests, open spaces perhaps only ten to twenty yards across, and effectively screened from interference by the great trees surrounding them. Even in these open spaces, however, cover is always ample, for boulders are strewn about and crops of rocks show here and there above the moss- and flower-covered ground. If, after they have been disturbed from their nests, one sits motionless and silent on a rock near by, the pair soon return and seem to take no notice of the watcher. One would think these little brown birds must have a real love of beauty, judging from the sites they select for their homes. One such I well recollect. At the base of a great rock they had placed their nest in a cosy, even if very damp, little hollow; above them grew a vast sheet of maidenhair fern, the fronds of which fell over the nest and hid it from view. In the glade itself the brilliant green of the moss growing everywhere, on ground, rocks and trees

alike, set off as a brilliant background the orchids which grew in profusion on every tree. Here a pile of golden *Dendrobiums*, there a bunch of the white and sweet-smelling *Celognes* contrasting with great masses of purple *Dendrobiums* and blue *Vandas*. If the beauties of flowers and orchids palled, the birds had only to climb to the top of their rock-fortress and from it gaze out on a view hard to beat. Many hundreds of feet below them wound the Jiri River, a silver thread in the distance, twisting and turning between the great forest-clad mountains on either side, perhaps a wisp or two of mist creeping, like spirits of the woods, along the stream and then fading into nothingness as the sun rose and flooded the whole scene with a shimmering golden heat, never penetrating to the cool depths of their own retreat.

In their nests, however, one could hardly say that the birds lived up to their surroundings. Whether domed or deep cup-shaped, generally the former, they were made of the same dark semi-decayed materials approved by their bigger cousins, from which their own nests only differ in size.

In the Khasia Hills they were common in some of the higher peaks, 5,000 to 6,000 feet, where there is suitable humid forest of Oak, Rhododendron etc., but they are never, so far as I am aware, found in the Pine forests which cover most of the higher hills in this district. They breed early, commencing in April and laying throughout May and early June.

The eggs, generally four in number, very rarely five or three, differ in no way except in size from those of the larger group, *brevicaudata*.

Forty-four eggs average 19.3×14.8 mm.: maxima 20.0×15.0 and 18.1×15.2 mm.; minima 17.8×14.7 and 19.0×14.0 mm.

In shape they are very broad obtuse ovals but, as a series, perhaps not quite so broad proportionately as those of *brevicaudata*. The surface is smooth and glossy and the texture hard and fine, the shells being very strong for their size.

(259) **Napothera roberti guttaticollis** (Ogilvie-Grant).

THE NORTHERN ASSAM SHORT-TAILED WREN-BABBLER.

Turdinulus roberti guttaticollis, Fauna B. I., Birds, 2nd ed. vol. i, p. 254.
Napothera roberti guttaticollis, ibid. vol. viii, p. 603.

This Wren-Babbler has so far only been found in a very small area. It occurs East of the Dihing in Lakhimpur District and round to the North bank of the Brahmapootra through Sadiya and thence along the lower hills and plains immediately adjourning as far as Tezpur. West and East of these points its limits of extension are not yet known. Stevens obtained specimens in the plains of North Lakhimpur three miles from the foot-hills but, normally, it is only found within about a mile of the hills

and thence up to 5,000 feet. Dr. Coltart and I found it breeding in some numbers in the foot-hills round Margherita but the Trans-Dikku Nagas brought in specimens to us from these hills taken at elevations probably nearer 5,000 than 4,000 feet.

Except that it sometimes breeds at lower elevations than the South Assam bird ever does, its nidification is in all respects like that of that bird.

Around Margherita we found it breeding in the very dense ever-green forest all round the coal mines. Its favourite sites for the nests were wedged in among boulders of rock at the sides of the many tiny streams which trickled or raced, according to the weather, through rocky gorges down to the Dihing and other streams. Although the ground was nearly all boulders and rocks, a very dense vegetation of ferns, shrubs and palm-ferns managed to find growing room between them and to form one of the most humid and hot forests I have ever been in.

They are very early breeders, our nests being all taken from the end of March to the end of April. Four eggs seem to be the normal clutch but I have one five. As a series they differ from those of *N. r. roberti* in being much more profusely marked and less glossy, this latter character being due to less of the hard glossy white ground showing.

Forty-five eggs average 19.4×14.8 mm. : maxima 21.6×15.1 mm.; minima 18.5×14.6 and 19.0×14.5 mm.

This little bird is just as tame as others of the genus. Stevens says it is a very hard bird to get specimens of, "as it stays almost at your feet turning over the leaves and absolutely ignoring your presence."

Napothera epilepidota.

THE PLAIN-THROATED WREN-BABBLER.

(260) *Napothera epilepidota davisoni* (Ogilvie-Grant).

THE TENASSERIM PLAIN-THROATED WREN-BABBLER.

Turdinulus epilepidotus davisoni, Fauna B. I., Birds, 2nd ed. vol. i, p. 254.
Napothera epilepidota davisoni, *ibid.* vol. viii, p. 603.

This race of Short-tailed Wren-Babbler breeds from the South of Tenasserim into the Malay States.

I can find no record of the breeding of this bird, but Mr. W. A. T. Kellow, then of the Simpang Estate, near Perak, sent me the remains of a nest with four eggs and the skin of one the parent birds, unsexed. It was obtained in the foot-hills of the range running about 20 miles East of Perak and was brought in by one of his collectors, the bird having been noosed on the nest.

This nest, said to have been domed or a very deep cup, is a mass of dead leaves and dead dark-coloured grass lined with

more dead leaves. The materials all have the black decayed look common to the nesting-materials of this genus.

The four eggs are quite typical of the species and average 18.2×14.6 mm. They are not heavily marked and are very glossy and hard-shelled.

(261) *Napothera epilepidota bakeri* Harington.

THE SHAN STATES SMALL WREN-BABBLER.

Turdinulus epilepidotus bakeri, Fauna B. I., Birds, 2nd ed. vol. i, p. 255.
Napothera epilepidota bakeri, ibid. vol. viii, p. 603.

This Babbler is found only in the Shan States and Karenni. There is no record of the breeding of the Tenasserim race of Wren-Babbler, but three eggs were sent me with a skin of this species to identify. They were said to have been taken on the 15th of February. These eggs are longer than most *Napothera* eggs and measure 19.6×16.3 , 20.3×17.0 and 21.6×16.8 mm.

I do not feel satisfied that the nest and eggs were correctly identified as those of the bird shot, and in dense jungles it is so easy to make a mistake if a bird is not trapped on the nest or shot leaving it that I would not accept these as without doubt.

(262) *Rimator malacoptilus* Blyth.

THE LONG-BILLED WREN-BABBLER.

Rimator malacoptilus, Fauna B. I., Birds, 2nd ed. vol. i, p. 255.

The Long-billed Wren-Babbler is found in the Outer Himalayas from Sikkim to the extreme East of Assam and on the South of the Brahmapootra in the foot-hills from Cachar to Lakhimpur; it occurs also in Manipur and the Lushai Hills but, apparently, not in the Chin Hills.

This Babbler breeds at considerable elevations and, so far, no one seems to have got the nest except myself. On the Barail Range it nests above 5,000 feet, or perhaps a little lower, on the highest ridges, whilst in the Khasia Hills we occasionally came across it on the 6,000-foot ridge and peaks above Shillong. It is one of the hardest birds to collect that I know of, for it has a perfect genius for keeping unseen, although its rather beautiful whistle may notify its exact whereabouts. It keeps entirely to forests and, even in these, it prefers the most broken country or steep ravines running down the sides of precipitous hills. In North Cachar I obtained casual glimpses of it occasionally when watching a nest but, even under these circumstances, it was difficult to get more than a glimpse, as it seems to have a facility for getting both on and off its nest without being spotted. It never fed or moved about within view when being waited for; all one saw was something alive—it might have been bird, reptile or mammal—just for

a second as it slipped into its nest. I never succeeded in getting a shot in this way, though it was easy enough to snare them on the nest. This is always placed on the ground, generally in among a mass of fallen leaves and other débris and often at the foot of some tree larger than the average of those round about it. Sometimes it was sheltered by a bush, bunch of *Caladiums* or other plants but, more often, it was concealed and protected by the fallen rubbish only. The nest is an ill-formed globe of all kinds of dark materials, leaves, grass, roots and fern- and bracken-fronds, rather loosely and clumsily put together and held in position by roots, weed-stems and fern-rachides. Although so badly built, it stands handling better than the nests of *Napothera*, as the materials themselves are not so rotten. The lining is of dry dead leaves only.

I think they are late breeders, most nests being taken in June, but I have either taken or had them found for me from the middle of May.

The eggs are, I think, unmistakable for those of any other birds, though there are some types of *Alcippe* eggs which are rather like them. The ground-colour is white, with generally the faintest tinge of lilac, and they are marked with primary blotches of deep red-brown or purple-brown and with short irregular lines and smears of the same. The secondary markings are of lilac-grey and are often more numerous than the primary markings and give a pronounced lilac tint to the eggs. In addition to all these there are often smears of pale lilac-red, intermediate between the primary and secondary blotches in depth of colour. The surface is fine and close but with very little gloss and the shell is strong. In shape they are moderately long true ovals.

The normal clutch is four, and I have one of five.

Thirty eggs average 21.2×15.5 mm. : maxima 22.6×15.6 and 21.2×16.1 mm. ; minima 20.2×15.0 and 21.1×15.0 mm.

Ophrydornis magnus.

THE TREE-BABBLER.

(263) Ophrydornis magnus magnus (Eyton).

THE RED-HEADED TREE-BABBLER.

Horizillas magna magna, Fauna B. I., Birds, 2nd ed. vol. i, p. 257.

Ophrydornis magnus magnus, ibid. vol. viii, p. 603.

This Tree-Babbler is found from Tenasserim and South-West Siam to Sumatra and Borneo.

It is said to be entirely a forest bird and arboreal in its habits, but very little is known about it.

The only nest and eggs known were taken by Major J. C. Moulton, who obtained them near Sarawak and very kindly sent them to me. The nest is cup-shaped, made of dead leaves,

grass and dead moss, lined with roots, and was built in a thick bush in dense forest. The nest and eggs are both of the same type, as we would expect, as those of *Malacocincla* (*Turdinus* auct.) but the eggs are even more beautiful and richly coloured than any I have seen of that bird. The ground-colour is a rich salmon-pink with a crimson flush at the larger end. The markings consist of wavy lines and a few spots of deep crimson brown, fairly numerous at the larger end and sparse elsewhere. They measure 19.8×15.0 and 20.0×15.1 mm.

The nest was taken on the 17th March, 1912.

(263) *Ophrydornis magnirostre magnirostre* (Moore).

THE BROWN-HEADED TREE-BABBLER.

Horizillas magnirostre magnirostre, Fauna B. I., Birds, 2nd ed. vol. i, p. 238.

Ophrydornis magnirostre magnirostre, ibid. vol. viii, p. 603.

The Brown-headed Tree-Babbler ranges from the extreme South of Tenasserim, South to the Malay Peninsula and East to Cochin-China.

It is essentially a forest bird but, beyond this, very little is known about it.

I have no record of its nidification but I have two eggs obtained during the Waterstradt expedition taken on the 19th March, which I secured when the collection of eggs was sold through W. Schluter, of Berlin, Germany.

The eggs are like washed-out eggs of the preceding bird. In colour the palest cream possible, with a few very faint lines and specks of pinky red and some almost washed-out smears of pale pinky grey, hardly visible without a glass. In shape they are blunt ovals, almost ellipses, with a smooth, slightly glossy surface and fairly stout texture. They measure 22.0×16.1 and 21.4×15.6 mm.

I could obtain no further details from Schluter except that they were taken from East Malacca on the 14th February, 1893.

Malacocincla sepiaria.

THE RUSTY-VENTED BABBLER.

(267) *Malacocincla sepiaria abbotti* Blyth.

THE INDIAN RUSTY-VENTED BABBLER.

Malacocincla sepiaria abbotti, Fauna B. I., Birds, 2nd ed. vol. i, p. 260.

Abbott's Babbler, by which name this Babbler has hitherto been known, is resident and breeds all through the lower outer ranges of the Himalayas from Sikkim to Assam and through

all the hill-ranges of Burma to the Malay Peninsula and East to Siam.

It is a bird of low elevations, seldom venturing above 2,000 feet, and it is most common, when breeding, between the plains and foot-hills at about 1,000 feet. It keeps, so far as I know, entirely to the interior of wet deep jungles and forests and is not found in scrub or bamboo-jungle. Its favourite haunts are the edges of forest on the banks of the larger streams and it seems to have a curious predilection for the vicinity of palm-ferns. It was not uncommon in the Jetinga Valley in North Cachar, in the higher reaches of the Sonacherra in Gowhati and the Khasia Hills and on the Dihing where it ran through heavy forest, in Lakhimpur. From the forests bordering all these streams I have had nests, whilst Primrose also took it near the Subansiri in Gowhati. The nest is generally placed quite close to the ground in a thick bush, a tangle of briars or mixed ferns and grass at the foot of palm-ferns, whilst I also took one nest which was edged into one of the rough projections in the trunk of a palm-fern about two feet from the ground.

The nest is a bulky cup made of dead leaves, weed-stems, a little moss and grass with a good lining of rather coarse red roots. The outer part, which consists of loosely put together dead leaves, perhaps mixed with a few long roots and weed-stems, falls to bits rather quickly when removed from its original position, but the inner cup, together with the lining, stands a great deal of pulling about. Occasionally one finds a nest with the outer part made almost entirely of bracken-fronds and, in these instances, they are always bound round well with weed-stems, so that the whole nest can for a short time be lifted up bodily without fear of destruction, though leaving a mat of leaves, such as is generally collected by the bird, for the nest to rest on. Bamboo-leaves, though these may be plentiful in the vicinity of the nest, seem to be seldom made use of by this species. The nests are well concealed but their bulk makes them easy to find; moreover, the parent birds do not vacate them when disturbed as quietly as many of their relations do. They slip quietly enough over the edge of the nest but then proceed for a few yards with rather a fussy flight before reaching the ground, when they soon get out of sight with long hops.

In Assam they breed principally in April and early May, though I have taken a nest as late as the 3rd July. In Tavoy Hopwood took a nest on the 10th March, but Oates took three nests on the 22nd and 23rd May and 10th June, all with eggs, in Southern Pegu.

The nests found by Oates agree well with those found by me, and he, too, alludes to their fondness for palms and says: "I have found old nests in dwarf palm-trees at the junction of the frond with the trunk." Other nests, however, were found by him in stout weeds about two feet above the ground.

Oates gives the measurements of his nests as about 5 inches in exterior diameter with a cup about $2\frac{1}{2}$ inches in diameter by

about 2 inches deep. My nests, I should think, averaged nearly another inch in external diameter, though the egg-cavity was about the same.

The eggs, which number three to five, are very beautiful. The ground is a bright salmon colour and they are marked with a few bold blotches and a few short twisted lines of deep red. The underlying spots are of lavender, deep in tint and rather conspicuous, whilst often there are additional smears of pink. A few eggs are paler and have only a few very fine lines of reddish.

Twenty eggs average 21.8×16.2 mm. : maxima 24.0×17.3 mm. ; minima 20.0×15.7 and 21.0×15.5 mm.

The shell is stout, the surface very fine and glossy, and in shape they are rather long ovals distinctly compressed at the smaller end.

(368) *Thringorhina oglei* (Godw.-Aust.).

THE GOLDEN-CROWNED BABBLER.

Thringorhina oglei, Fauna B. I., Birds, 2nd ed. vol. i, p. 262.

Nothing is known or recorded about this bird except its discovery by Godwin-Austen at Manbhoom Tila above Sadiya. Neither Dr. Coltart nor I ever saw the bird at Margherita, though it was evidently a common bird on the Patkoi Range, thence extending all round Eastern Lakhimpur to the hills North of Sadiya. It is probably a bird of high ranges, coming down somewhat lower in Winter. Several nests and eggs were brought to Dr. H. N. Coltart and myself by the wild Nagas living to the East of Margherita in villages at about 6,000 feet or higher. In each case the nests and eggs were accompanied by one or both parent birds; all the nests and eggs agreed perfectly with one another and we could see no reason for questioning their authenticity. The bird in each instance was noosed on the nest and, in one case, a bird was brought in with the noose still round her neck, with the other end on the nest, as when caught.

According to the Nagas, the nests are large globular affairs with the entrance close to the ground. The materials consist principally of bamboo-leaves, more or less mixed with roots, twigs, dead leaves and a little dry moss. They are said to be placed on the ground under bushes in rocky ravines running through forest, but one was said to have been taken from a ravine, close to a village, and covered with dense scrub. This particular nest came from a village at full 6,000 feet and it would appear as if these birds haunt valleys in between the higher hills, though Manbhoom Tila, where it also occurs, is about 10,000 feet high.

The eggs are pure white and very similar to those of the *Pomatorhini*, only rather more fragile in proportion to their size. The texture is fine and smooth, the surface slightly glossy, more so in some than in others.

Fifteen eggs average 22.8×17.1 mm. : maxima 24.0×17.4 and 23.5×18.0 mm. ; minima 21.5×16.0 mm.

The earliest nest brought to us was on the 18th April and the latest on the 22nd May, so they are probably very early breeders. In each instance the eggs and nests were taken about three days, or less, earlier than they were handed over to us. The Nagas lived two marches distant from Margherita and their custom was to spend the day previous to their coming down to the plains in catching birds on their nests. These they brought to Dr. Coltart and the proceeds helped them with their purchases in the bazaar. Like all Nagas, they had a most intimate knowledge of wild life, and their lesser sin of cutting off each others heads did not seem to include the greater civilized sins of cheating and lying, so that we could depend on them to tell us the truth about the nests and eggs. The date they were taken we could tell exactly, as with each nest was a slip of bamboo with a notch for each day passing after it had been taken.

Stachyris nigriceps.

THE BLACK-THROATED BABBLER.

(270) *Stachyris nigriceps nigriceps* Hodgs.

THE SIKKIM BLACK-THROATED BABBLER.

Stachyris nigriceps nigriceps, Fauna B. I., Birds, 2nd ed. vol. i, p. 264.

Since Oates wrote the 2nd edition of Hume's 'Nests and Eggs' this little Babbler has been divided into three well-marked races. The present one is found from Nepal and Sikkim all along the outer ranges of the Himalayas, together with their Terai, as far as the extreme North-East of Assam but not South of the Brahmapootra.

In Sikkim it is found from the foot-hills up to about 6,000 feet, for though, according to Oates, it ascends to 10,000, this is probably exceptional, and Stevens has no record over 6,000 feet. Gammie Masson, Inglis and others seem to have found its breeding range to run principally between 2,000 and 6,000 feet, and Osmaston took several nests between 5,000 and 6,000. It occurs in the plains adjoining the hills, but there is no record of its breeding in them.

Gammie took many nests which he describes as domed or semi-domed, but Hodgson describes the nest as "a large, deep, cup-shaped nest, either upon the ground in the midst of grass or at a short distance above the ground between five or six thin twigs." Except for its being cup-shaped, Hodgson's description of materials, sites etc. agrees with that of later collectors. All of these agree in saying that the nest is domed, but the bamboo-leaves forming the dome slip on one side as soon as handled and, if Hodgson's description applies to the nests brought in to him by natives, this would quite well account for it.

The nest is, in fact, nearly always domed, made outwardly entirely of bamboo-leaves, these being placed just one on the top of the other and not even interlaced, so that they fall out of position directly they are handled. Inside these bamboo-leaves the true nest is made of bamboo-roots, fibre, moss- and fern-roots, with a few bamboo and other dead leaves, fern-fronds sometimes forming the major portion of those used. These inner materials are quite well interlaced and are further lined with finer moss- and fern-roots. The outside of the nest may be anything between $4\frac{1}{2}$ and $6\frac{1}{2}$ inches by $3\frac{1}{2}$ to $4\frac{1}{2}$ in width, but the egg-cavity is seldom more than about $2\frac{1}{2}$ inches, both in diameter and depth.

Nearly always it is placed on the ground but, generally, on a sloping bank to ensure good drainage, and nearly always well concealed in shrubs, grass or fallen débris. Rarely it is placed in a bamboo-clump six inches to two feet from the ground and completely covered by fallen bamboo-spathes and leaves. Still more seldom it may be placed low down in a bush, mass of creepers or brambles.

The Black-throated Babbler breeds in almost any kind of cover from thin open grass-land to deep tropical forest. It prefers, however, secondary growth or scrub-jungle and, after that, mixed bamboo- and bush-jungle.

They breed during April, May and June and, occasionally, into July, most birds having two broods in the year.

The number of eggs laid is almost invariably four, rarely five or three. They are pure white, short broad ovals with close, strong texture and a moderate gloss.

Fifty eggs average 18.8×14.4 mm.: maxima 19.2×15.0 and 18.1×15.2 mm.; minima 17.7×14.4 and 18.1×14.1 mm.

In the 'Fauna,' by a typographical error, the average size is given as 19.2×14.7 mm.

(271) *Stachyris nigriceps coltarti* Harington.

THE ASSAM BLACK-THROATED BABBLER.

Stachyris nigriceps coltarti, Fauna B. I., Birds, 2nd ed. vol. i, p. 265.

This subspecies is extremely common throughout all the hills South of the Brahmapootra between 1,000 and 3,000 feet, descending in small numbers to the plains, though not breeding there, and ascending to 4,000 feet. From Assam it stretches through the Chin and Kachin Hills to the Northern Shan States but not to the Southern, where it is replaced by *S. n. davisoni*. It has also been recorded from Yunnan.

All the time I was in Assam I annually saw dozens of nests of this little Babbler, and so invariably are the nests domed that I do not think that all this time a half-dozen cup-shaped nests

were seen. In appearance, nature of site and jungle selected there is nothing to add to what has already been written about the Sikkim form. Among the more unusual nests which have been seen reference might be made to two made entirely, in their outer parts, of scraps of green bracken-fronds, really very beautiful nests and, because the edges of the fronds worked into one another, very compact little nests as well as beautiful.

The usual breeding season is April to June but I have taken nests in the end of March and others as late as the third week in August. Probably most pairs of birds have two broods.

The female seems to do most of the work of building the nest except the carriage of materials. The male constantly fusses round and looks very busy but, even when carrying the material, he drops two-thirds of his scraps before he gets them to her. Both birds incubate and I have trapped both sexes on the eggs.

Incubation, I believe, takes twelve days. In one nest the last of four eggs was laid on the 13th May and, when revisited on the 26th, all were hatched and looked some hours old. Another nest containing four eggs, the last laid 31st May or 1st June, had one egg hatching on the 12th June and the others chipping.

The eggs number four and rarely five. They are just like those of the preceding bird, and two hundred average 19.1×14.7 mm. : maxima 20.1×15.3 and 19.9×15.5 mm. ; minima 17.2×14.2 and 18.0×14.0 mm.

(272) *Stachyris nigriceps davisoni* Sharpe*.

THE MALAY GREY-THROATED BABBLER.

Stachyris nigriceps davisoni, Fauna B. I., Birds, 2nd ed. vol. i, p. 265.

This, the third race of *Stachyris nigriceps*, is found from the South of the Shan States to peninsular Siam and Tenasserim to the Malay States.

Oates took a nest of this bird in evergreen forest on the Pegu Hills, shooting one of the parent birds. The nest "was on a bank of a nullah well concealed among dead leaves, about 2 feet above the bottom of the bank. The nest is domed, about 7 inches in height and 5 inches in diameter externally, with the entrance at the side near the top. The outside is a mass of bamboo-leaves, very loose, being in no way bound together ; each leaf is curled to the shape of the nest. The inside, a thin lining only of vegetable fibre."

Bingham took a second similar nest in the Sinzaway Reserve, in Tenasserim, on the 20th March with five hard-set eggs. Since then Grant and Harington have taken them in the Southern Shan States during April, whilst Hopwood took a nest in Tounghoo

* Oberholser (1922) has separated the Burmese bird from the Malay under the name of *Stachyris nigriceps dipera*. I cannot distinguish between them.

in May. Grant's nests were taken in grass-land and Hopwood's on a bank, nearly buried in fallen bamboo-leaves, in bamboo-jungle.

Nests and eggs are exactly like those of the other races.

The average of twenty eggs is 19.1×14.9 mm.: maxima 20.0×15.3 and 19.4×15.4 mm.; minima 18.7×14.3 mm.

Stachyris chrysæa.

THE GOLDEN-HEADED BABBLER.

(273) Stachyris chrysæa chrysæa Blyth.

THE NEPAL GOLDEN-HEADED BABBLER.

Stachyris chrysæa chrysæa, Fauna B. I., Birds, 2nd ed. vol. i, p. 265.

This pretty little Babbler breeds at all heights from 3,000 to 6,000 feet in the Outer Himalayas from Eastern Nepal, Sikkim and Bhutan to Eastern Assam, both North and South of the Brahmapootra, through Manipur to the North Chin and Kachin Hills. Rothschild also records the species from Yunnan but, on the single specimen obtained, refrains from allocating it to any particular race.

When breeding, this tiny Babbler frequents bamboo-jungle and secondary growth as well as undergrowth in humid evergreen forest but I think the latter is at all times its favourite haunt. I found it very common in the higher valleys of the Barail Range between 3,000 and 4,000 feet, where the forest is always wet and green. Here along some of the streams there are strips of bamboo-jungle, only fifty to a hundred feet or so wide and, wherever there have been ricefields, deserted after a few years cultivation, there are areas of secondary growth, thin and scanty the first year or so but afterwards becoming very dense and matted. In any one of these three places one might find the nest of a Golden-headed Babbler. In bamboo-jungle the nest was sometimes placed at the foot of a clump or in among the bamboos a foot to two feet from the ground, where it was almost, or quite, buried in the fallen leaves. Occasionally it might be on the ground in the open, yet just as completely hidden in the masses of bamboo-spathes lying several inches deep in all directions. In scrub-jungle the nests were usually on the ground, well screened by sheltering bushes and weeds, though I have seen one or two built at the bottom of low bushes. In forest they are also nearly always placed on the ground under grass, bracken or a small bush and, practically invariably, on a bank sloping steeply enough to prevent the water saturating the nest.

The nest itself is normally domed, made outwardly of bamboo-leaves or, seldom, of grass-leaves or strips of grass. The leaves are placed round and round to fit a tight little inner nest of fine

roots, but sometimes this inner cup is wanting and the lining consists of a few roots and fine bits of leaves, whilst in some nests the eggs are laid directly on the bamboo-leaves and one wonders how the nest ever keeps together long enough to permit the birds to rear their young. Deep cup-shaped nests are not exceptional with this Babbler, but most of these are nests built in bamboo-clumps or in among fallen spathes and leaves which form a more or less waterproof canopy over the eggs.

The nests vary a good deal in size, this depending on the extent to which the surrounding twigs, leaves etc. compact the actual materials of the nest. Roughly speaking, they vary from 4 to 6 inches in height and from 3 to 4 in width, the inner cup being under 2 inches both in width and depth.

The breeding season in the Southern hills commences in early May and continues throughout June, while a good many nests, possibly second broods, may be found in July. I have taken fresh eggs from the 3rd May to the 23rd July in the North Cachar and Khasia Hills. In Lakhimpur, however, Coltart and I both found them breeding above Margherita in April. We also found them breeding here at 1,000 to 1,500 feet elevation, much lower than anywhere else within their range but, as I have already remarked, the avifauna of this end of Assam invariably represents birds occurring 1,000 to 2,000 feet higher elsewhere, owing, I presume, to the vicinity of the snow-line.

The full clutch of eggs is four and they are pure white, very short broad ovals with a high gloss and a fine close texture, decidedly strong for so small an egg. Occasionally one finds a clutch with one or more of the eggs spotted lightly with reddish-brown, but such eggs are so rare as to be almost abnormal.

Seventy eggs average 15.4×12.2 mm. : maxima 17.1×13.0 mm. ; minima 14.2×11.9 mm.

(275) *Stachyris chrysæa assimilis* Walden.

THE BURMESE GOLDEN-HEADED BABBLER.

Stachyris chrysæa assimilis, Fauna B. I., Birds, 2nd ed. vol. i, p. 267.

The Burmese Golden-headed Babbler is found, and is resident, in the hills of Eastern Burma from the Southern Shan States to Karenni and probably all the Central hill-ranges of Burma.

I have only one note about its nidification, sent me with a clutch of three eggs from the Southern Shan States:—

“The nest was just a handful of bamboo leaves curved round in the shape of a nest and lined with a few roots and fine fibres. Although, *in situ*, the nest presented the appearance of a small domed structure, just the act of looking in to see if there were eggs knocked all the dome off and spoilt the nest. It was placed

on the ground where it was steeply sloping in mixed bamboo and bush jungle at about 4,000 feet elevation, and was taken on the 2nd of April."

The three pure white eggs measure 16.1×11.4 , 16.4×12.1 and 16.3×12.3 mm.

Stachyridopsis ruficeps.

THE RED-HEADED BABBLER.

(277) Stachyridopsis ruficeps ruficeps Blyth.

THE ASSAM RED-HEADED BABBLER.

Stachyridopsis ruficeps ruficeps, Fauna B. I., Birds, 2nd ed. vol. i, p. 268.

Hodgson recorded this Babbler as breeding in Nepal from April to June but he does not state at what elevations; Gammie took two nests in Sikkim at 3,500 and 5,000 feet; Stevens says it is common and breeds at all moderate elevations up to 7,400 feet, whilst Osmaston took nests near Darjiling at 6,500 and 7,500 feet. In the hills South of the Brahmapootra I took nests between 3,400 and 6,000 feet.

This bird may be found in almost any kind of forest or jungle both in the breeding and non-breeding season. For instance, of four nests taken by Osmaston near Darjiling the types of jungle are recorded as "low jungle growth," "low undergrowth in secondary forest," "low undergrowth in open forest," and "undergrowth in mixed forest of Oak and Chestnut."

Nests taken by myself have, I think, in the majority of cases, been found in low shrubs, or under low shrubs growing in the deep humid forests of Assam where it is always green, deep in shade and more or less cool shelter from the sun, however hot one gets with hard exercise in such humid atmosphere. Many nests, however, were taken both in deserted cultivation and in bamboo-jungle, especially when this latter was on the banks of rivers or streams and had a certain amount of undergrowth.

The nest is sometimes placed on the ground but not nearly so often as is that of the Golden-headed Babbler. More often it is placed low down in a thick bush or in a clump of bamboos, whilst a very favourite position is a tangle of Raspberry or Blackberry vines growing over a steep bank. Hodgson describes the nest as "a large massive cup-shaped nest [I have never seen such] amongst bamboos as a rule, at heights of from 7 to 10 feet from the ground."

The nest is of two descriptions—a deep cup or domed. Gammie describes one of the latter as follows:—"I took two nests of this Babbler in April. They are of a neat egg-shape, with entrance at side, and were fixed vertically between a few upright sprays,

within 3 feet of the ground, in open situations near large trees. The external dimensions are about 5.5 inches in height and 4 inches in diameter. Internally, the diameter is 2 inches and the depth from roof 3.25. The entrance is 2 across. They are composed of dry bamboo leaves only, put neatly and firmly together, and are lined with a very few grassy fibres. They each contained four well set eggs."

Mandelli's non-domed nest was taken by him "at Leborg on the 23rd June, in the middle of a tea bush which grew at the side of a small ravine, which was neither hooded nor domed. The nest was about 18 inches from the ground and was completely sheltered from above by tea-leaves. It was a deep cup composed externally chiefly of bamboo leaves, but with a good many dead leaves of trees incorporated in the base, and lined with very fine grass stems. It contained four fresh eggs."

The many nests I have taken come well under the above two descriptions. On the whole they are better made, more compact nests than those of *S. chrysæa* and stand more handling, even if not strong enough to remove as a whole without damage. The bamboo-leaves, instead of being carelessly put one straight above another, are often somewhat interlaced and help to hold one another in position. When, as occasionally happens, the nest is made of grass, it will actually stand removal and remain intact for some days. I have taken one nest made entirely of fern-fronds and others with a little bracken, a few leaves or pieces of grass woven into the other materials, whilst a bed of dead leaves for the nest to rest on is quite commonly collected.

A very unusual nest taken by Mackenzie in the Chin Hills is described by him as "a most beautiful little nest like an Oriole's, hanging in a horizontal fork. Made of bamboo leaves with moss and cobwebs outside and the finest grass stems inside."

They breed during May and June principally, but Gammie near Darjiling, Mackenzie in the Chin Hills and Coltart at Margherita all took eggs in April, whilst a good many birds also lay early in July. The eggs are white in ground, marked with small spots and blotches of brown or reddish-brown, generally fairly numerous at the larger end and sparse elsewhere. In some eggs the spots and blotches are reduced to very small freckles of pinkish-brown or very pale brown, while in a few they are enlarged to fair-sized blotches, making a handsome ring at the larger end. The shell is fine and close with a moderate gloss.

Fifty eggs average 15.8×12.6 mm.: maxima 18.2×12.6 and 17.1×13.0 mm.; minima 14.6×12.4 and 15.0×12.0 mm. A clutch of abnormally large eggs taken by Osmaston near Darjiling average no less than 19.2×14.0 mm., one egg being 19.5×14.1 mm., and it is noticeable that a series of the eggs taken North of the Brahmaputra average much bigger than those taken South of it.

(278) *Stachyridopsis ruficeps bhamoensis* Harington.

THE BHAMO RED-HEADED BABBLER.

Stachyridopsis ruficeps bhamoensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 269.

The Bhamo Red-headed Babbler is found from the Kachin and Bhamo Hills to the Shan States.

Harington says that it is fairly common at Sinlum Kaba, in the Bhamo Hills, between 5,000 and 6,000 feet, where it frequents just as varied types of forest and jungle as its cousin does in Assam. Harington writes (Journ. Bomb. Nat. Hist. Soc. vol. xix, p. 117, 1909):—

“A very noisy little bird during the breeding season, drawing attention to itself if anyone invades its own particular patch of jungle. It builds an untidy retort-shaped nest entirely of bamboo leaves, which it places in clumps of long overhanging grass. It is always very well concealed and can only be found by seeing the bird fly out; eggs generally three in number; one nest I got, however, with four.”

This little Babbler commences to breed in March and eggs may be found until the end of May, though most birds have finished laying by the end of April.

The normal full clutch of eggs seems to be three, four being seldom laid. They are similar to those of the preceding bird, but I have one clutch pure white and another practically so, though, with a glass, a faint ring of very pale reddish spots may be seen at the larger end.

Thirty-six eggs average 16.3×12.7 mm.: maxima 18.0×12.7 and 16.8×13.6 mm.; minima 14.5×12.1 and 16.8×11.5 mm.

Stachyridopsis rufifrons.

THE RED-FRONTED BABBLER.

(279) *Stachyridopsis rufifrons rufifrons* Hume.

THE BURMESE RED-FRONTED BABBLER.

Stachyridopsis rufifrons rufifrons, Fauna B. I., Birds, 2nd ed. vol. i, p. 270.

This Babbler is resident and breeds from the Shan States to Tenasserim and to North-West Siam. There is practically nothing on record about it. Oates merely says that he “found it in the forests on the Western spurs of the hills, frequenting brushwood in a nullah.” Probably it will be found to frequent and breed in the same kind of country as the next, and much better known, bird, the Assam Red-fronted Babbler.

Hopwood appears to be the only collector who has taken its nest and eggs. He describes the nest “as practically identical with

those of *Mixornis gularis* but not so solidly put together and built into the thick shoots springing from a bamboo clump that had been cut down."

This nest contained three eggs, now in my collection. They are like well, rather brightly marked eggs of the next bird. They measure 16.0 in length by 13.0, 12.6 and 12.4 mm. in breadth, and were taken on the 20th May in Tavoy.

(280) *Stachyridopsis rufifrons ambigua* Harington.

THE ASSAM RED-FRONTED BABBLER.

Stachyridopsis rufifrons ambigua, Fauna B. I., Birds, 2nd ed. vol. i, p. 270.

The Assam Red-fronted Babbler is found from Sikkim to the extreme East of Assam, both North and South of the Brahmapootra, and Manipur. In Sikkim it appears to keep to elevations under 3,000 feet even in the breeding season, but I have no record thence of its nesting. It occurs all along the foot-hills, and Stevens records it from many places at the edge of the plains in Lakhimpur. Coltart and I obtained it breeding near Margherita, but it was very rare there. South of the Brahmapootra it was very common in the foot-hills, adjacent plains and up to 2,000 feet, though it bred in small numbers up to 3,000 feet in the valleys between much higher hills.

Like the Red-headed Babbler, these birds may be found in almost any kind of jungle or forest, though I never once saw them in Pine forest, perhaps because these grew mostly at a higher elevation than this species frequents. On the whole it is less often seen in green, humid forest than it is in bamboo-jungle, scrub and bush, or in deserted clearings. These last are certainly its favourite resort, especially for breeding purposes. The clearings are made for cultivation in dense forest, the trees are cut down, only the largest being merely ringed and left standing; then, when the jungle has withered and dried, it is set fire to and burnt off. After cultivation of rice for a few years the clearing is abandoned and at once shrub-growth and weeds spring up; in the second year clumps of small bamboos appear, and in the third year there is a dense matted jungle of bamboos, bush and small trees in which the Red-fronted Babblers, with many other birds, can nest and slink about with but little chance of interference.

H. A. Hole found this bird breeding in Sylhet in the numerous bush-covered ravines which debouched from the forest into the plains along the foot-hills; whilst Stevens records their haunting similar ground in Lakhimpur.

The nests are not often placed actually on the ground, though I have seen a few in this position, generally on banks in rather thin

bamboo-jungle in which there was not much undergrowth but where it was carpeted with a deep bed of fallen bamboo-leaves. Most of my nests have been taken from bamboo-clumps; some from inside the clumps, resting on the rubbish collected there, more from the outside of the bamboos, where they were generally wedged in between the masses of little twigs springing from the lower nodes of the bamboos. In three instances out of four they would be placed between 18 inches and 3 feet from the ground but I have seen nests as high as 6 or 7 feet up.

The nests are typical of the genus but, considering the materials of which they are made, better put together and more compact than the others. The ordinary nest is domed, placed upright in between supporting twigs or on a bed of leaves and rubbish inside a clump. A few nests are deep cups or semi-domed, and I have taken several which were like big eggs, the smaller end having been sliced off on a slant. These generally stood a little on one side, whilst the materials were slightly drawn in at the small end to reduce the size of the entrance. The materials used are principally bamboo-leaves, but mixed with these are grasses and leaves, whilst some nests are almost completely made of grass alone, this being well interlaced and forming quite a stout little nest. The lining in most cases is of fine fibrous roots and is quite well and compactly made. At times, however, the lining is dispensed with, or consists merely of a few roots or fibres placed anyhow at the bottom of the nest. Domed nests measure from 5 to 7 inches outside if made of bamboos but, if made of grass only, some $4\frac{1}{2}$ to $5\frac{1}{2}$ inches. The cup is always a neat little affair about 2 inches in diameter by about $1\frac{1}{2}$ in depth.

The breeding season is May and June, but a few birds breed in July and a good many in April.

The usual clutch is four eggs, and I have taken one or two of five and a good many incubated sets of three.

The eggs certainly could not be distinguished from those of the Red-headed Babbler and, unfortunately, the birds also certainly cannot be distinguished at a cursory glimpse, so, as their breeding areas overlap, one has always to snare a bird on the nest in order to make certain of its identity. Although shy little birds, they sit very close and, if disturbed from the nest, soon return to it. Both sexes take part in incubation, for I have trapped both sitting on their eggs.

One hundred eggs average 16.1×12.4 mm. : maxima 17.3×12.8 and 15.5×13.2 mm. ; minima 14.8×11.9 mm.

In shape the eggs are broad ovals, the texture close and fine and the surface with a moderate gloss. The shell is stout for so small an egg.

(281) *Stachyridopsis pyrrhops* (Blyth).

THE RED-BILLED BABBLER.

Stachyridopsis pyrrhops, Fauna B. I., Birds, 2nd ed. vol. i, p. 211.

This quaint little Babbler is found throughout the Himalayas from Murree and Kashmir to the Simla Hills and the Dun, breeding between 3,000 and 6,000 feet. About Simla Jones says it is not uncommon up to 7,000 feet, whilst near Dehra Dun Osmaston obtained nests as low down as 2,500 feet. At Mussoorie they are most common between 5,000 and 6,000 feet and ascend higher than the latter. In Kashmir, also, Ward has found them breeding at over 7,000 feet.

The Red-billed Babbler frequents light open forest and hill-sides more or less covered with bush and scrub and, like so many other small Babblers, is especially fond of growth in deserted cultivation. The nest is nearly always placed low down in a shrub in dense undergrowth but I have at least one record of it having been built on a bank on the ground. On the other hand, no one seems to have taken its nest from bamboo-clumps, such favourite sites for the nests of its nearest relations.

The nest itself is a ball of grass or leaves, sometimes well put together, but generally rather loosely and carelessly. As a rule there is no lining, other than the smallest blades and leaves being used for the innermost part of the nest. The size of the nest varies extraordinarily, this depending on the amount of materials used and the compactness with which they are put together. Hume's summary of Hodgson's notes runs:—"Mr. Hodgson found the nest of this species in Nepal at an elevation of 6,000 feet in shrubby upland, placed in a small shrub about 2 feet from the ground. It was a very deep cup, about 4 inches in length, and 2·5 inches in diameter externally, placed obliquely endwise upon cross-stems of the shrub and opening, as it were obliquely, upwards at one end, the cavity being about 1·5 in diameter. The nest was made of dried leaves and grass pretty compactly woven."

To contrast with this, Rattray's notes on one of his nests reads:—"I found one nest of this bird near the Waterworks, Mussoorie, placed in a small bush. The nest was a round ball of broad grass blades with the entrance on one side, very loosely constructed, and the outside diameter must have been nearly ten inches."

They seem to have a very long nesting season. Jones found a brood of young hatched and out of the nest on the 23rd April near Simla, whilst Whympers took fresh eggs as late as the 6th of July at Naini Tal and Capt. R. A. Skinner took others at Dagshai on the 7th of that month.

The eggs are like all other eggs of *Stachyridopsis*, broad white ovals with a slight gloss, lightly speckled and spotted, chiefly

at the larger end, with pinkish-red or brick-red. Pure white eggs are rare, and I have seen no clutch with all the eggs unspotted.

Thirty-two eggs average 16.5×13.0 mm. : maxima 17.5×13.1 and 17.2×13.8 mm. ; minima 15.9×12.8 and 17.0×12.6 mm.

The full clutch is three or four eggs, perhaps more often four.

Cyanoderma erythropterum.

THE RED-WINGED BABBLER.

(282) **Cyanoderma erythropterum erythropterum** (Blyth).

THE MALAY RED-WINGED BABBLER.

Cyanoderma erythroptera erythroptera, Fauna B. I., Birds, 2nd ed. vol. i, p. 271.

The range of this bird just comes within our limits in the extreme South of Tenasserim, whence it extends through the Malay Peninsula to Sumatra.

This also appears to be a Babbler of scrub- and bamboo-jungles rather than of forest, though it is sometimes found in the latter also.

Davison found its nest at Bankasoon on the 23rd of April but the eggs had not been laid. The nest "was a ball composed of dry reed-leaves, about 6 inches in diameter, externally, with an aperture on one side, very like that of *Mixornis rubricapillus*, placed in a bush about 4 feet high, and not on the ground."

A nest with two eggs taken by Hopwood and Mackenzie is described as follows:—"Nest about 3 feet up, in a cane running horizontally. Semi-domed and made entirely of bamboo leaves, compactly but untidily put together and lined very scantily and roughly with a few fine grass stalks. It measured about $3\frac{1}{2}$ inches in all dimensions."

Eggs were taken by the Waterstradt expedition, while Kellow also took a nest for me near Perak with two eggs. This nest was apparently just like that found by Hopwood but measured about 7 by 5 inches and was very loosely constructed, though built of the same materials. The female was caught on this nest and may have loosened the walls and top before measurement.

Of the seven eggs in my collection, the two taken by Hopwood are pure white; the other five have the same glossy white ground but are freely speckled with dark brick-red, in one clutch of two the marks being rather larger and distributed sparsely over the whole surface, whilst in a clutch of three they are smaller spots and more numerous at the larger end, where they form indefinite rings.

The seven eggs average 17.6×13.5 mm. ; the largest is 17.1×14.0 mm. and the smallest 16.1×12.9 mm.

Mixornis gularis.**THE YELLOW-BREASTED BABBLER.**

(283) *Mixornis gularis rubricapilla* (Tickell).

THE ASSAM YELLOW-BREASTED BABBLER.

Mixornis rubricapilla rubricapilla, Fauna B. I., Birds, 2nd ed. vol. i, p. 273.

Mixornis gularis rubricapilla, *ibid.* vol. viii, p. 604.

The Yellow-breasted Babbler is a species which has a very wide range and has been divided into many races the exact geographical limits of which are not quite satisfactorily worked out even now. Three subspecies certainly enter our boundaries and the nidification of all three of these is now well known.

The present race extends along the foot-hills of the Himalayas from Sikkim to Eastern Assam. It is found in the Chin and Kachin Hills and then down Arrakan and the Western side of Burma to North Tenasserim. In Assam it is extremely common in the hills South of the Brahmapootra, where it ascends as high as 2,500 feet, though it breeds most numerous below 2,000. In the Himalayas it is a bird of the foot-hills and plains only, extending far into the latter but, probably, not breeding much above 1,000 feet. The highest record I have for these hills is one taken in the Darjiling Districts at about 2,200 feet. It is said to occur in the Central Provinces but there is no record of it breeding there.

This Babbler prefers rather thin bamboo-jungle to all other cover, both of the giant and small clump variety and of the single small bamboo; if there is a little grass and bush undergrowth so much the better, but the condition of the ground does not interest it greatly as it does not hunt therein for its food, nor does it place its nest there. It is also commonly found in any kind of scrub or bush cover, especially secondary growth, while I also found it breeding in land surrounding Miri villages, wide extents of grass-land much grazed over and trodden by buffaloes, mixed here and there with a few clumps of bamboo and a good many thorny bushes. This was the only place in which I saw the birds feeding on the ground. Occasionally it ventures into deep evergreen forest for nesting purposes and I found one nest at Haflang, in North Cachar, built in a forest of magnificent timber with dense undergrowth.

The nest is placed in a bush or bamboo-clump anywhere from one to four feet from the ground. When placed in a bush it is nearly always so built that it is very well concealed by the surrounding leaves but, when built in bamboo, there seems to be no attempt at concealment; nor, indeed, is this necessary, as the nest looks just like the hundred and one little clusters of bamboo-leaves which lie about everywhere and collect in all the jutting

twigs and branches. In Pegu Oates took a nest built on the top of a stump and another in a shrub ten feet from the ground—both quite unusual positions in other parts of their habitat. The nest is nearly always made of bamboo-leaves alone, sometimes of broad grass-blades, sometimes of the two mixed. The lining, if any, is of finest grass or of fine fibrous roots. The nest is, I think, always globular, like a small football lying on its side, varying in size according to the amount of material used. I have seen them as small as five inches by four, sometimes as large as eight inches by five. When built in a bamboo-clump in the thick tufts of twigs which grow on the first few feet of the clumps it would be quite impossible to detect the nest until the bird quits it for, after it is built, other bamboo oddments fall on it and take away the general appearance of a nest very quickly.

They breed principally in May and June in Assam, a few nests and eggs being found both earlier and later; however, in Burma the first few eggs may be found in March, and they continue to breed through April and May, whilst Oates found two nests, with eggs, on the 2nd and 28th June.

The eggs number three or four, occasionally five. The ground is china-white or white very faintly tinged with pink, and the surface is freely, but not heavily, speckled and blotched with very small blotches of red or reddish-brown; sometimes these are scattered over the whole surface but, more generally, they are more numerous at the larger end, where they form a ring. Secondary specks are present, but not very obvious, of pale lavender-pink, often difficult to see without a glass.

In shape the eggs are rather long obtuse ovals, varying from this to rather broad ovals. The surface is fine and strong with a decided gloss.

One hundred and twenty eggs average 16.6×12.6 mm. : maxima 17.2×12.6 and 16.9×13.0 mm. ; minima 14.9×11.8 mm.

(284) *Mixornis gularis minor* Gyldenstolpe.

THE SIAM YELLOW-BREASTED BABBLER.

Mixornis rubricapilla minor, Fauna B. I., Birds, 2nd ed. vol. i, p. 274.

Mixornis gularis minor, *ibid.* vol. viii, p. 604.

This subspecies is common over a great part of Siam, and in Eastern Burma is found from the Shan Hills to Karenni.

So far as I know Mr. R. Livesey is the only observer to find a nest within our limits. Curiously enough his single nest was a deep cup made of broad grass-blades. With a photo he sends me the following note :—"Nest about 18" from the ground in an evergreen bush." The three eggs it contained were, unfortunately, destroyed by cattle.

Sir W. F. M. Williamson and Mr. E. G. Herbert took a good many nests of this Babbler in Siam and the latter, who most generously handed over his whole collection to me, writes as follows on its nidification (Journ. Siam Nat. Hist. Soc. vol. vi, p. 92, 1923):—"It is a fairly common inhabitant of the fruit gardens, where it may be seen hopping about on the lower branches of the smaller trees, or on the bamboos and hedges. It is a great skulker and, when disturbed, quickly disappears into the thick part of a bamboo clump.

"The nest is invariably built of dry bamboo-leaves, and lightly lined with fibre; it is globular in form with the entrance at the side near the top, and measures approximately 4"×4"×3". I have seen many nests and they have all been built either in the centre of a Pine-apple plant or in the top of a young Betel-nut palm about three to five feet from the ground. They are by no means easy to find, as the bird selects a spot where everything is littered with bamboo-leaves, and so every Pine-apple plant or young Betel-palm in that part of the garden has a bunch of dead leaves in it which at first sight might be taken for a nest. I have found this Babbler breeding in the fruit gardens on the West side of the river from Banglampoo to Samray, and lower down at Paklat, also up the river at Samkok. The nesting season is in the early part of the rains during May and June.

"The eggs are regular ovals, moderately elongated, and only slightly compressed towards the smaller end. The ground-colour is china-white, and the markings are fine specks with a few irregular spots in reddish-brown, more densely clustered round the large end. There is some variation in the depth of colour of the markings, for some clutches bear quite a pale shade, while others carry a rich reddish-brown with a few purple-grey spots.

"Three eggs is a normal clutch."

Some of the clutches taken both by Williamson and Herbert number two only, and all the eggs given me by these two gentlemen, now in my collection, were taken from the 15th April to the 11th June.

Fifteen eggs average 17.0×12.9 mm.: maxima 17.4×13.1 and 17.2×13.6 mm.; minima 16.7×12.3 mm.

(285) *Mixornis gularis pileata* (Blyth).

THE MALAY YELLOW-BREASTED BABBLER.

Mixornis rubricapilla pileata, Fauna B. I., Birds, 2nd ed. vol. i, p. 274.

Mixornis gularis pileata, ibid. vol. viii, p. 604.

This, the third form of Yellow-breasted Babbler, occurs throughout peninsular Tenasserim and Siam.

Davison first found this Babbler breeding in Tavoy and wrote to Hume as follows:—"At a small village, called Shymootee,

about 7 miles from the town of Tavoy, and very slightly above sea-level, say 50 feet, I found on the 6th May, 1874, a nest of this species. The nest was placed in a dense clump of a very thorny plant (somewhat like a Pine-apple bush) about a foot from the ground; it was not particularly well concealed. The nest was built of bamboo-leaves, and in general appearance was not unlike that of *Ochromela nigrorufa*; but the egg-cavity was very shallow, so that by moving aside an overhanging leaf the eggs were distinctly visible."

Hopwood and Mackenzie took quite a good series of the nests and eggs in Tenasserim. The latter describes one nest taken by him twenty miles East of Mergui on the 17th March:—"The nest was placed about 4 feet high in a bamboo clump. It was domed and made entirely of bamboo leaves with a slight lining, first of grass stems and, inside that, black fungus tendrils. This seems to be the usual site for the *Mixornis* nests, whilst the nest was quite typical of all I took."

One or two other nests are described as exactly like the above but placed in bushes instead of in bamboo-clumps.

The country selected seems always to be open scrub- or bamboo-jungle, quite often the birds breeding close to villages and altogether in its habits it seems to be much more familiar than our Indian birds.

Nests with eggs were found from the 23rd February and thence onward through March, April and May, whilst the latest was taken on the 11th July, perhaps a second laying.

The eggs are just like those of the other races, though there is in my series one set of three taken by Hopwood which has the ground-colour quite pink, the markings consisting of numerous tiny specks of reddish-pink scattered equally over the whole surface. Another clutch, taken by Mackenzie, has a ring of small deep red blotches round the larger end.

Twenty-five eggs average 16.9×13.1 mm. : maxima 18.2×13.3 and 17.2×14.0 mm. ; minima 15.3×12.8 and 16.4×12.3 mm.

Alcippe nipalensis.

THE WHITE-EYED QUAKER-BABBLER.

(286) ***Alcippe nipalensis nipalensis* (Hodgs.).**

THE NEPAL WHITE-EYED QUAKER-BABBLER.

Alcippe nepalensis nepalensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 275.

This little Babbler is found throughout the Outer Himalayas from Nepal and Sikkim to Eastern Assam, both North and South of the Brahmapootra. It extends to Manipur and to the North Chin and Kachin Hills, as well as to Arrakan but, on the Lower

Chindwin in the East, seems to be replaced by *A. n. fratercula*. In Sikkim Stevens found it common from the plains up to 6,000 feet, taking many nests in the Rangbong Valley at about 5,500 feet, whilst Osmaston obtained nests up to 6,500 feet near Darjiling. In the South Assam Hills we found it breeding in great numbers from 1,500 to 3,000 feet, above which level it was rare, though it was found on the Barail Range throughout the breeding season at nearly 7,000 feet. At Margherita we took its nest at heights between 5,000 and 6,000 feet, whilst it also appeared to be common on the Patkoi Range at much greater heights.

The White-eyed Quaker-Babblers seem not to mind much what kind of country they breed in, and it is one of the few birds in the Khasia Hills which enter the Pine-woods and breed there. In these woods they keep much to the ravines, where there is always a certain amount of small tree-growth other than Pines, in addition to a sufficiency of low shrubs, bushes and brambles to ensure cover, which is otherwise very scanty under Pine-trees. I have taken its nest in bamboo-jungle, in open scrub and bush-cover near forest, abandoned cultivation and in forest of all kinds, provided there is thick undergrowth. In Darjiling Osmaston took nests in the thick undergrowth of both light and dense evergreen forest, whilst at Rangbong Stevens found them in well shrub-covered ravines in forest. Gammie and Mandelli also took numerous nests about Darjiling and the former writes:—"I have only found this Babbler breeding in May at elevations about 5,000 feet, but it doubtless breeds also at much lower elevations, probably down to 2,000 feet." In Margherita Coltart took them both in open scrub mixed with small trees and in bamboo-jungle.

Personally I think I have taken nests in every kind of country except open grass-lands or in the beautiful park-like lands of long grass with scattered Oak forest very common in the North of North Cachar. The nests are cup-shaped and are generally fairly well made and put together, being made of various materials, of which bamboo-leaves and broad grass-leaves nearly always form a part. With these are mixed roots, leaves, fern- and bracken-fronds, whilst often a few plant-stems, long fine tendrils or similar materials are used to bind the other items together. In addition I have seen cobwebs used to assist in the binding. The lining is always of fine roots, generally of moss or fern, but I have seen the tiny hanging bamboo-roots used and also what looked like rhizomorph of a fungus.

Hume gives a similar description of nests sent him by Mandelli and Gammie:—"The interior and, in fact, the main body of the nests appear to be in all cases chiefly composed of fine black hair-like roots, with which, in some cases, especially about the upper margin, a little fine grass is intermingled. The cavities are generally much about the same size, say 2 inches in diameter by 1.25 in depth ;

but the size of the nest on the whole varies very much. The nest is always coated exteriorly with dry leaves of trees and ferns, broad blades of grass and the like, fixed together sometimes by mere pressure, but generally here and there held together by fine fibrous roots, and this coating varies so much that one nest before me measures 5.5 in external diameter, and another barely 4, the external covering of fern-leaves, flags and dry and dead leaves being very abundant in the former, while in the other the covering consists entirely of broad blades of grass very neatly laid together."

The nests are generally situated in small bushes at heights between 18 inches and 4 feet from the ground but sometimes much higher, and I have myself found nests at 6, 7 and 8 feet from the ground in thin straggling bushes in very unconcealed positions. I have also often taken them from bamboo-clumps, built on the longer twigs springing from the lower part of the bamboo or on branches 4 or 5 feet from the ground. Generally the nest is built in between upright twigs, to which it is firmly attached by some of the nesting materials being wound round the supports. Occasionally, however, the nest is pendent or semi-pendent, being built in a horizontal fork of a branch or in a bamboo-branch. Such a nest as this is described by Hodgson, who found it in a low bush about $1\frac{1}{2}$ feet from the ground in a small horizontal fork, the materials of the nest being wound round the forks and suspending the nest, which had nothing to rest on underneath.

The nesting season commences early in April, Hodgson taking a nest with three eggs on the 1st of that month. It continues throughout May and June, whilst Hume and Osmaston both record eggs taken in July, the latter finding a nest with three eggs on the 17th of that month.

The eggs number three or four but I have found two incubated and have also taken five eggs in a clutch and, perhaps, one in forty nests may number as many as this.

The eggs vary more than do those of almost any other bird and it is quite impossible to give any general description, but the following details of the colouring of the most definite types give an idea of what kinds of eggs may be expected so long as it is remembered that every intermediate form may also crop up:—

(1) Ground white to pink with minute specks of lilac or purply pink covering the whole surface but generally denser and coalescing to form a ring or cap at the larger end. Variations of this have the markings light red, brick-red or purple-red.

(2) The same but with larger blotches or spots, sparser and sometimes much more numerous at the larger end than elsewhere.

(3) Ground cream to pale pink with large blotches and smears of reddish or brick-red, with others again, underlying, of lavender or grey. The boldest marked of these eggs are extremely handsome.

(4) White, with lilac-purple blotches, nearly all confined to the larger end.

(5) White, with lilac-purple blotches and broad smears freely distributed all over and only slightly more numerous at the larger end than elsewhere.

(6) White, with small spots and blotches of purplish-black at the larger end and scanty elsewhere. Often with a few lines twisted about with the spots.

In shape the eggs are broad oval, slightly compressed towards the smaller end ; a few are rather long, obtuse ovals, and still fewer rather pointed ovals. The texture is close and rather fine but with very little gloss.

Two hundred eggs average 18.4×14.0 mm. : maxima 19.7×14.3 and 18.6×15.0 mm. ; minima 17.0×13.7 and 18.2×13.2 mm.

The birds are not very close sitters and leave the nest generally before one gets close, but the better concealed the nest the closer they allow one to get to it. We have frequently trapped both male and female on the nest, so both take part in incubation but, probably, the male only sits morning and evening when the hen is feeding. Five birds caught between about 11 A.M. and 4 P.M. were all females. I am not sure how much the male does in nest-building but I have seen him bringing materials to the female.

Incubation probably takes eleven to twelve days. Eggs laid on or before the 23rd May were all hatched on the 4th June, two nestlings already dried, the third still wet.

(287) *Alcippe nipalensis fratercula* Rippon.

THE SHAN STATES WHITE-EYED QUAKER-BABBLER.

Alcippe nipalensis fratercula, Fauna B. I., Birds, 2nd ed. vol. i, p. 277.

The distribution of this Babbler is not yet exactly known. It is found in the Kachin and Bhâmo Hills, through the Shan States and the whole of Eastern Burma. It occurs on the Lower Chindwin, but how far up is unknown, and it extends to Tenasserim. It breeds from quite a low level, though I have no record of a nest from the plains and, in the Shan States, nests up to 6,000 feet. In the Bhâmo Hills it appears to be common between 4,000 and 6,000 feet.

Like the last bird, this appears to have not much choice as to its habitat provided sufficient cover is available.

Two nests, one described by Pershouse and one by Mackenzie, give a good idea of the range, within which they will be found to vary.

Pershouse found two slightly incubated eggs "in a cup-shaped nest made of bamboo-leaves, moss and roots, lined with grasses and fibres, some of the latter red in colour. It was placed against a bamboo sapling and supported by the thin branches growing

from one of the notches, about 4' 6" from the ground." This was taken at Sinlum Kaba, Bhamo Hills, at 5,500 feet, on the 19th May.

Mackenzie's nest, which was taken on Nwalabo Mountain, Tavoy, at 5,000 feet, on the 10th May, also contained two eggs, and the hen, shot off the nest, contained no others ready for laying. "The nest was slung by the edge into a small branch, two of these being worked into the material of the top, whilst in a third place it was attached to a cane, crossing the twigs. It was just the usual type of nest, *i. e.*, a small, rather loosely built cup, the foundation being of bamboo-leaves, placed thickly together, with a few grass-blades inside this and lined with mycelia (*fungoid*)."

Two nests, some of the first ever found, taken by Harington on the 18th April, are interesting both from their position and on account of their construction. He writes:—"The nest was placed on a bramble in long grass about three feet from the ground and was composed of fern leaves and grass, lined with some sort of red fibre, and measured $4 \times 1\frac{1}{2}$ " inside. I also found another nest containing two eggs. This was in a more open situation, under a clump of trees and about four feet from the ground, and composed almost entirely of moss."

The breeding season is March to May, rarely extending into June, the eggs in my collection dating from 9th March to 10th June (Hopwood), but May is the principal month for laying.

The eggs seem to go through much the same range of variation in colour as the Nepal bird, but I have no clutch of No. 1 type, with the tiny freckles covering the whole surface. Doubtless a bigger series would contain this type as well as the others.

The bird generally lays only two or three eggs, and the only four I have is one taken by Harington at Sinlum on the 2nd May.

Thirty-eight eggs average 18.5×14.4 mm.: maxima 19.7×15.1 mm.; minima 17.4×13.6 and 18.1×13.2 mm.

Alcippe poioicephala.

THE QUAKER-BABBLER.

(288) *Alcippe poioicephala poioicephala* (Jerdon).

THE NILGIRI QUAKER-BABBLER.

Alcippe poioicephala poioicephala, Fauna B. I., Birds, 2nd ed. vol. i, p. 277.

This Quaker-Babbler is found from the Nilgiris to the South of Travancore both in the plains and in the hills. Stewart says it is found at all elevations but is most common between 2,000 and 4,000 feet on the Travancore Hills. In the Nilgiris it appears

to be found higher and breeds at 6,000 feet (Cardew) and, possibly, even higher than this.

It is a Babbler of the forests and often of very deep forest, though it may be occasionally found breeding in scrub. In the Nilgiris it apparently breeds in the better wooded "sholas." Darling, quoted by Hume, says: "The Nilgiri Quaker-Thrush breeds on the slopes of the Nilgiri Hills, generally in the depths of the forest."

Stewart and Bourdillon both write of it as a shy bird but common in deep forest and seldom venturing into scrub; Stewart says it prefers "damp forest."

The nest seems to be much like that of the White-eyed Quaker-Babbler.

Bourdillon says it "is cup-shaped and made of lichen, leaves, and grass, usually placed 4 to 8 feet from the ground in the middle of the jungle, and is about 2" in diameter by $1\frac{3}{4}$ –2 in depth."

Miss Cockburn, on the 5th June, took a nest in a small bush, about 7 or 8 feet in height, standing on the banks of a stream. "It was placed in the midst of a clump of leaves, at the tips of three or four little twigs, between which the nest was partly suspended and partly wedged in. It was composed of fine grass-stems, with a few grass and moss-roots as a lining interiorly, and with several dead leaves and a good deal of wool incorporated in the outer surface, the greater portion of which, however, was concealed by the leaves of the twigs amongst which it was built. It was only about 3 inches in diameter and the egg-cavity was less than $2\frac{1}{2}$ inches across and not above $1\frac{1}{2}$ inches in depth."

Another nest taken by Miss Cockburn differed again in the materials of which it was made. "It was a deep cup, massive enough but loosely put together, and composed of green moss, dead leaves, a little grass and moss-roots. It was entirely lined with rather coarse black moss-roots."

The nests of this race, unlike those of the last, are not as a rule placed in small low bushes well hidden, but rather from 5 to 10 feet up in small saplings or thin high bushes and quite conspicuous. Bourdillon says that when working in the forest one constantly comes across them and cannot help seeing them at once. Stewart also says it is "placed without any attempt at protection in saplings on bushes 4 to 8 feet from the ground."

It breeds principally in May and June, often in April, whilst Stewart says that he has taken its eggs in every month of the year.

The full clutch of eggs laid is two only, three being obtained but seldom. A. P. Kinloch at Kalingode took several threes and thought that in that place three was the normal-sized clutch.

The eggs of this species do not normally vary to anything like the extent that those of the *nipalensis* group do. All those in my series, which includes Stewart's, Bourdillon's, Kinloch's and many others, are of the same type. The ground-colour is a pale salmon

and the markings consist of primary blotches and broad smudges of deep purple-brown or purple-black, with secondary similar ones of pale grey, inky-grey or pinkish-grey. In many eggs there are also short broad lines and hieroglyphics of the same colours. Within this one type the variation is pretty wide; some eggs have the deep-coloured markings reduced to small specks and spots, in a few they are absent and replaced by reddish mottlings and, in others, the blots and smudges are but few and the lines and scriggles numerous.

In shape the eggs are moderately broad ovals, always blunt at the smaller end. The texture is fine and close and the shell not fragile, though there is only a slight gloss, sometimes more, sometimes less.

Forty-two eggs average 20.0×15.1 mm.: maxima 22.6×15.5 and 22.0×16.5 mm.; minima 18.5×14.6 and 19.0×14.1 mm.

(289) *Alcippe poioicephala brucei* Hume.

THE BOMBAY QUAKER-BABBLER.

Alcippe poioicephala brucei, Fauna B. I., Birds, 2nd ed. vol. i, p. 278.

Harington, who carefully worked out the range of this Babbler, gives it as "Mahableswar, Western Ghats from Rajkot in Khatiawar to Belgaum; the Central Provinces; Pachmarhi and the Pareshnath Hill, Bengal." Pareshnath is, of course, in Chota Nagpore, the driest of all the Bengal districts. To this should be added North Kanara.

There is nothing recorded in Hume's 'Nests and Eggs' of the breeding of this bird, which was, of course, well known to him under the binomial *Alcippe phaeocephala*. The notes were probably amongst those which were stolen.

Davidson has a brief note to the effect: "A very common bird in the evergreen forests all over the district (North Kanara). I have always found its neat cup-shaped nests in bushes in the "Rans" in January, February and March. The nests were generally about three feet from the ground and in very thick cover."

Betham records it as common at Poona, where he took many nests, and says the bird keeps carefully to thick jungle.

The nests seem to be just the same as those of the preceding bird, but a majority of those found by Betham were of the "suspended" type but varying a good deal individually. Thus three nests taken by him are described as (1) "A beautiful nest suspended in a small fork of a branch of a tree overhanging a brook, a compactly built nest, lined with bents and stems"; (2) "a flimsy cradle nest in a high bush in thick jungle"; and (3) "a cradle nest of leaves and roots with a little moss and lichen, suspended from the branch of a small tree or shrub."

They breed in Kanara from January to April, but I have also one clutch taken by Davidson in August. Betham took most

of his nests at Poona in this latter month and I have two clutches taken at Mt. Abu, in Rajputana, on the 2nd and 17th April.

The normal clutch is two only, though three eggs are not uncommon.

The usual type of egg is that described for the preceding subspecies, but I have two clutches which differ considerably from the rest, though matched by many eggs of the White-eyed group. These two clutches have the ground white and they are marked with deep purple spots, some looking as if they had run, confined to the larger extremity and then fast decreasing in numbers towards the smaller. The blotches are rather larger in one set than in the other, and in the latter there are a few lines as well as small spots. Some eggs have the ground-colour very pale cream, almost white.

Thirty-five eggs average 20.0×15.0 mm. : maxima 21.3×15.3 and 20.1×16.1 mm. ; minima 17.9×14.1 mm.

(290) *Alcippe poioicephala phayrei* Blyth.

THE ARRAKAN QUAKER-BABBLER.

Alcippe poioicephala phayrei, Fauna B. I., Birds, 2nd ed. vol. i, p. 278.

This race of Quaker-Babbler is found from Assam, through Manipur and the Chin Hills to Arrakan. Sufficient material from Arrakan is still wanting to enable the identity of the Assam bird with that of Arrakan to be confirmed or refuted.

It is extraordinarily common in the hills South of the Brahmapootra and Mears and Oates also record it as "common over the whole 'district' " of the Upper Chindwin (Journ. Bomb. Nat. Hist. Soc. vol. xviii. p. 80, 1906).

It is most common between 2,000 and 3,500 feet in both these areas but ascends to the highest hills and is also found down to the foot-hills. In Arrakan, where it was discovered, its status is not so well known.

It is less essentially a forest bird than either of the two preceding species and I often found it in bamboo-jungle or in secondary growth as well as in the deepest evergreen forest. It has a curious partiality for water and a great many of my nests have been taken from bamboos and bushes either overhanging or standing alongside streams. At other times it makes its nest just inside evergreen forest bordering on cultivation clearings. The nest is sometimes placed in a low bush, sometimes in a bamboo-clump or the small single bamboo—an unusual place for any bird's nest—but more often in high bushes or small saplings five or six feet from the ground.

The nest is the usual cup, sometimes pendent like an Oriole's, but generally in between upright twigs or a small fork. Outside

the nest is generally built of bamboo-leaves and grass, fairly tidily bound and kept in position by a few weed-stems, long roots or grass-stems. Often a little moss, a little grass or a few leaves are incorporated in the sides and generally a good number of dead leaves are worked into the base. The lining is nearly always in two parts, first coarse roots and a few tendrils and then rather finer roots which are often bright red. In size the cups vary a good deal. Most are between 4 and 5 inches in diameter outside by about 3 to 4 in depth, the inner cavity being about $2\frac{1}{2}$ by 2 inches or rather less. Some nests are bigger and some smaller on the outside but the receptacle for the eggs does not vary much.

The breeding season in Assam is April, May and June but at the lowest levels a few birds breed in the end of March and a few after the middle of May. In the Chindwin all Hopwood's and Mackenzie's eggs were taken in April. I have seen odd nests with eggs as late as September. Three or four eggs form the normal full clutch, while in the many hundreds of nests I have seen there have been, perhaps, half a dozen containing five.

The usual type of egg is that of the species, a salmon-coloured egg with deep clouds and blotches, but in every five or six nests one comes across an example of one of the other types described in detail as occurring among the eggs of the White-eyed Quaker-Babbler, and I have all of these represented in my series, taken in North Cachar and the Khasia Hills. Two unusual clutches are: (1) white with only a tiny cap of minute freckles of lilac at the extreme larger end; (2) creamy white with a wreath of purple hair-lines and blotches at the larger end.

One hundred and fifty eggs average 19.6×15.0 mm.: maxima 21.7×15.6 and 21.4×16.0 mm.; minima 17.3×14.0 and 19.0×13.3 mm. In these measurements are included neither abnormally large nor pigmy eggs, of which I have seen several.

This is a shy, quiet little bird and, although it often makes so conspicuous a nest, it is not a close sitter, slipping quietly off into the jungle before one approaches very close to the nest.

Both sexes take part in incubation

(291) *Alcippe poiocephala davisoni* Harington.

THE TENASSERIM QUAKER-BABBLER.

Alcippe poiocephala davisoni, Fauna B. I., Birds, 2nd ed. vol. i, p. 279.

The Tenasserim Quaker-Babbler is found from Moulmein South to Tavoy and Mergui.

The nests and eggs of this Quaker-Babbler have been taken by a good many collectors from the time of Bingham and Darling to that of Mackenzie and Hopwood and it appears, according

to them, to be found both in "heavy" or "evergreen" forest and in bamboo-jungle. The nest appears to be placed in very varied situations. Bingham, on the 25th February, found his "a firm little cup, borne up some two feet above the ground, on the fronds of a strong-growing fern, to three of the leaf-stems of which it was attached. It was made of vegetable fibres and roots and lined interiorly with fine black hair-like roots."

Darling's nest, which was found in heavy jungle on the 9th April, "was built in a small bush 4' from the ground (hanging between two forked twigs), of bamboo and other leaves, moss and a few fine twigs, and lined with moss and fern-roots, 2 inches in diameter and $1\frac{1}{2}$ deep" (? internal cup).

Davison took his nest on the 1st March "in a little bush about two feet above the ground, the bird seated on a little moss-made nest and utterly refusing to move off until I almost touched her, when she hopped on to a branch a few feet off and disclosed three naked little fledglings struggling or just struggled out of their shells."

Hopwood and Mackenzie each took a nest built on bamboos and agreeing with the nests of other Quaker-Babblers. Neither of these two mention moss as one of the materials used, though all three of the first-described nests contained some. Their nests were made of the usual bamboo-leaves and grass outside, with the little cup of roots and fine grass-stems inside. These will probably be found to be the normal materials of most nests. Hopwood took his nest on the 25th February, whilst Mackenzie took his two on the 19th April and 21st May. In addition to these I have two nests and eggs, one taken by Major Harris on the 19th January and one by W. Partridge on the 1st June. Of the eight nests therefore taken, so far as is known at present, two were obtained in each of the months of February and April and the others, one in each of the remaining months from January to June.

The eggs seem to number two and but rarely three, whilst in coloration they generally agree with the salmon, blotched and smudged type common to all the races of *poioicephala*, except that they are unusually deep in tint. A single egg taken by Mackenzie has a pale cream ground dotted sparingly with brick-red and with little secondary blotches of grey. Two clutches of two each have a white ground with purple spots, numerous at the larger end but sparse elsewhere. This is a very common type with the White-eyed group but exceptional in the present species.

The average of twenty-one eggs is 19.1×14.7 mm.: maxima 20.8×15.0 mm.; minima 18.2×14.0 mm.

In shape and texture they are quite normal.

(292) *Alcippe poioicephala haringtoniæ* Hartert.

THE UPPER BURMA QUAKER-BABBLER.

Alcippe poioicephala haringtoniæ, Fauna B. I., Birds, 2nd ed. vol. i, p. 280.

This form of Quaker-Babbler is restricted to the North-East of Burma from the North Kachin Hills to the Bhamo Hills and Northern Shan States.

Harington, who discovered this bird, merely remarks that it is found in "thick undergrowth of heavy forest."

Mr. F. Grant writes me:—"As did Harington, I only found this bird in the Bhamo Terai, at elevations between 400 and 600 feet, breeding in fairly well wooded country and in thick scrub jungle in old clearings. All the nests I took, eight in all, were placed well within reach of the hand and, so far as shape, construction etc., were just like those of '*fratercula*.'

"Of the eight nests taken, seven contained three eggs each and one only two. The earliest was taken on the 27th March and the latest on the 2nd June; all of these were fresh except one clutch of three taken on the 28th March, which were well incubated."

Like all *Alcippe* eggs, those of this bird are very beautiful, and this particular subspecies seem to lay exceptionally varied types. Harington and Grant both say that the eggs in most cases are of the typical *poioicephala* salmon ground type, but in my small series there are the following unusual clutches:—Pale salmon-yellow, sparsely dotted dark brick-red; two pairs, probably laid by the same bird, white ground with dense rings or caps of mottled purple-brown and with secondary blotches of lavender; another clutch of salmon-pink is faintly mottled with lavender-pink and a few dots of brick-red; yet another clutch of three has a rose-pink ground with deep purple-brown blotches and paler smears.

Twenty-two eggs average 18.7×14.9 mm.: maxima 20.3×15.0 and 19.1×15.3 mm.; minima 17.5×14.5 and 17.9×14.0 mm.

(293) *Alcippe poioicephala karenni* Rob. & Kloss.

THE LOWER BURMA QUAKER-BABBLER.

Alcippe poioicephala magnirostris, Fauna B. I., Birds, 2nd ed. vol. i, p. 280.

Alcippe poioicephala karenni, *ibid.* vol. viii, p. 605.

This is one of the *Alcippes* whose range still requires working out in its limits. It was discovered in Karenni and is common so far North as Kalaw, in the Shan States. On the West it crosses the Sittaung into the Pegu Yomas but not further West across the Irrawaddy. It meets and merges into *davisoni* somewhere between Moulmein and the South of Karenni. East it is found in Siam, but how much farther is not yet certain.

I can find nothing on record as to the type of country affected by this Quaker-Babbler but have numerous notes from Hopwood (Toungahoo), Cook (Kalaw) and Mackenzie (Prome) which probably embrace the whole question, and may be summarized as follows:—

It is found both in the plains and in the lower hills and valleys. It is, perhaps, most often to be seen in light open forest with ample undergrowth but sometimes ventures a considerable distance into fairly heavy evergreen forest. Often it breeds in bamboo-jungle, where it makes use of bamboo-clumps as sites for its nests and, less often, it also nests in secondary growth or in the expanses of open grazing ground where the grass, growing some three or four feet high, is much trampled and grazed down. Here and there in the grass a certain number of bushes, small and big, and, perhaps, a few trees, grow, and several times in these little patches Cook found nests.

As regards the nests themselves these seem to be quite typical of the genus. Cook says: "This is one of the most common of the small jungle-loving birds of the lower hills and valleys. The nest is a small neat cup, rather loosely yet strongly put together, of grasses, bamboo and other leaves, tendrils and roots, neatly lined with a few black rootlets. It is always placed in bushes fairly low down, sometimes quite conspicuous but rarely very well hidden. The normal clutch is two eggs, three occasionally."

Mackenzie describes a nest taken in a bamboo-clump:—"Nest placed low down in a bamboo-clump. Outwardly it measured $3\frac{1}{4} \times 2\frac{1}{4}$ " in depth. The egg-cavity was about $2\frac{1}{4}$ wide by $1\frac{3}{4}$ deep. The nest was made of grass with a complete outer covering of bamboo leaves, lined with fungus mycelia." Another nest is described as "a shallow cup made principally of grass, containing fibre and roots."

The breeding season seems to be a very long but not very early one. Hopwood took one nest in April and others in May, whilst Mackenzie took his first nest at Prome on the 20th June and then onwards up to the 1st September. At Kalaw Cook took nests in May, June and July.

The eggs are exceptionally beautiful. The normal type of *poioicephala* is the most common, the ground in these varying from very pale salmon-cream to a deep salmon almost obliterated by numerous smears and blotches of deep salmon-red. There is in my series one clutch of the lilac-speckled type of *nipalensis* egg and others of the type with a pink ground heavily covered all over with small red blotches. A very unusual clutch, and not quite duplicated by any other *Alcippe* egg which I have seen, is a clutch of three very pale creamy eggs densely marked with brownish-red in a ring at the larger end, from which part the specks gradually decrease towards the smaller end but are still rather dense inside the rings.

Thirty eggs average 18.8×14.6 mm. : maxima 20.2×16.0 mm. ; minima 16.8×13.6 mm.

Rhopocichla atriceps.**THE BLACK-FRONTED BABBLER.**(294) **Rhopocichla atriceps atriceps** Jerdon.**THE NILGIRI BLACK-FRONTED BABBLER.***Rhopocichla atriceps atriceps*, Fauna B. I., Birds, 2nd ed. vol. i, p. 281.

The Black-fronted Babbler is found in the Nilgiris and other hill-ranges of South-West India but not in Travancore.

Generally speaking this little Babbler is an inhabitant of any sort of forest or jungle with sufficient undergrowth, and is found from the level of the plains up to practically the top of the hills wherever there is forest. Sometimes, however, it breeds in thick bamboo-jungle, more especially if this has an undergrowth of grass and bushes. In Kanara it nests more often in scrub-jungle than in forest, and a small series of eggs taken by Mr. T. R. Bell were forwarded to me with the following note :—"This Babbler makes a completely domed nest, oval in shape and rough and loosely put together. The materials are all blades of grass and reeds with a lining of softer bits of the same. They are placed generally in low bushes in scrub jungle, seldom more than five feet from the ground."

Again, Davidson (Journ. Bomb. Nat. Hist. Soc. vol. xii, p. 657, 1899) says :—"It seems to spend most of its time building unnecessary nests. They are thick untidy masses of bamboo leaves with an entrance on one side, and are placed at all heights from two feet to about ten or twelve. The bird is very partial to bamboo jungle, and most of the nests found were in bamboos."

In the Nilgiris, Wait, as quoted by Hume, says :—"It builds in weeds and grass beside the banks of old roads, at elevations of from 5,000 to 5,500 feet. The nest is placed at a height from a foot to 2 feet from the ground, is domed and loosely built, composed almost entirely of the dried blades of the lemon grass, and lined with the same or a few softer grass-blades. In shape it is more or less ovate, the longer axis vertical, and the external diameters 4 and 8 inches."

Miss Cockburn found one nest "amongst reeds on the edge of a stream, about 2 or 3 feet above the water's edge."

The curious habit of this species of breeding in company is alluded to by Bates in his charming account of their breeding in Mercana (Journ. Bomb. Nat. Hist. Soc. vol. xxxi, p. 293, 1926) :—"I feel inclined to accuse these birds of nesting in colonies. In Mercana I don't think I ever came across less than two nests together and on two occasions I struck seven within a few yards of one another. Both of these batches were in steep wide ditches practically concealed by undergrowth and creepers and running

through coffee plantations. Once in the ditch one could walk down the centre quite comfortably. The nests faced into the centre of the ditch, being anchored as a rule in hanging strands of creeper at about six feet from the ground. They were in a row at an almost even interval of about six or seven yards. Two of the nests were still being used as sleeping compartments."

The usual breeding season is May, June and July but there are few months in which a nest with eggs may not be found. Davidson took nests with eggs in March, August and December as well as in the months mentioned, and I have also a clutch in my collection taken in February.

Wait says that in the Nilgiris they lay two or three eggs but I have never seen more than two or heard of anyone else except Wait who has seen three.

The eggs are pure white speckled or spotted with brownish-red, the spots very slightly more numerous at the larger end than elsewhere. Variation is exceptionally slight in the eggs of this species and the only eggs I have seen calling for remark are a pair of very small eggs very lightly freckled all over with pale pink and another which has quite large brownish-chocolate blotches at the larger end, in one egg forming an indefinite cap and in the other an equally indefinite ring at the extremity of the larger ends.

A few eggs have a very faint tinge of grey in the ground-colour, only discernible when placed alongside china-white eggs.

In shape the eggs are rather long blunt ovals.

Twenty-four eggs average 19.3×13.8 mm.: maxima 20.9×15.0 mm.; minima 18.0×12.3 mm.

The bird is said to sit close, only slipping quietly off the nest, into the scrub round about it, when the intruder is within a few feet of the nest.

(295) *Rhopocichla atriceps bourdilloni* (Hume).

THE TRAVANCORE BLACK-FRONTED BABBLER.

Rhopocichla atriceps bourdilloni, Fauna B. I., Birds, 2nd ed. vol. i, p. 282.

This geographical race of the Black-fronted Babbler is confined to Travancore but does not, perhaps, extend to the extreme North, as Stewart thought the form he obtained there was nearer true *atriceps* than *bourdilloni*. Both Bourdillon and Stewart obtained fine series of nests and eggs of this quaint little Babbler, and the following is a summary of their notes sent to me with their series of eggs:—

The Travancore Babbler is found throughout the whole of Travancore except, perhaps, in the extreme North. It is found at all elevations, both when breeding and at other times, but is more common above than below 2,000 feet. At the same time

it is not rare either in the plains or at heights of 6,000 feet. Its favourite resort is forest with ample thick undergrowth, and Bourdillon says it is particularly fond of damp evergreen forests, breeding in these during the Rains, when the humidity is very great. It may also be found in bamboo-jungle and scrub, but only if these are dense and with much undergrowth. All the year round some of these little birds may be met with still in flocks of half a dozen to a dozen, for the breeding time is so diversified that there is no season at which a certain number are not resting from domestic labours. They are so sociable that those not actually nesting always get together and their constant, but not unmusical, chatter may be heard throughout the year.

The nest is oval or globular and seems invariably to be made from the leaves of the "eerul" reed. Sometimes it is lined with fine roots and fine grasses but, at other times, it would seem there is no lining at all. It is a flimsy affair, the reed-blades being very loosely and untidily put together, with but little attempt at interlacing, whilst the lining, if present, is meagre and poorly constructed. The nest is placed in bushes, tangles of grass and creepers, or brambles, nearly always quite close to the ground and sometimes within a few inches of it, rarely more than five feet up.

The months in which most eggs are laid are April, May and June, but it seems to lay at odd times throughout the year, and Stewart has taken eggs in every month. The normal clutch of eggs is two only and, though Bourdillon twice took three, the latter number may be considered abnormal. One of Bourdillon's clutches of three is also very small and unusually heavily marked.

The eggs are exactly like those of the Nilgiri bird and I have no eggs which call for remark other than the three already referred to.

Twenty-four eggs average 19.1×14.1 mm.: maxima 20.0×14.3 mm. and 19.0×14.6 mm.; minima 18.4×14.2 and 18.4×13.8 mm.

(296) *Rhopocichla atriceps nigrifrons* (Blyth).

THE CEYLON BLACK-FRONTED BABBLER.

Rhopocichla atriceps nigrifrons, Fauna B. I., Birds, 2nd ed. vol. i, p. 282.

As its name denotes, this subspecies is confined to Ceylon, breeding practically throughout the island. Legge's notes on its nidification are very full and cannot be added to:—

"The breeding season in the North of the island lasts from November until March, and in the South, where most of our birds nest during the rains, from March until August. Mr. Parker writes me that in the Seven Korales they breed mostly in May. The nest is generally placed in a bramble or straggling piece of undergrowth, often in a prominent position near a jungle path, at a height of from 2 to 4 feet from the ground. It is almost invariably made of dry leaves placed horizontally or in layers

one on the other, the top being supported by the intermixture of a few twigs, and the opening being a wide unfinished orifice almost on a level with the bottom of the interior, which is composed of the same materials as the outside. The structure thus formed is a shapeless, globular mass, sometimes of one foot in diameter at least, and from its large size and generally exposed situation is one of the first nests which meet the eye in the Ceylon jungles.

"The birds construct their nests with great rapidity, picking up the leaves one after the other from just beneath the spot in which they are building. I have seen them, from a place of concealment, sticking the leaves into the structure at the rate of two or three a minute. From the number of these leaf-nests one finds in the forests of Ceylon it would appear that probably several are constructed by the same birds before the eggs are deposited in the one finally chosen by the little architect. They are used as roosting places by the young brood, who resort to them at night after they have reached their full size and are abroad with their parents."

Elsewhere Legge says they frequent "underwoods, thicket, and tangled jungle" and that it is found at all elevations where there are "either forest, low jungle or even scrubby copse," and "it is especially numerous in these portions of the Western and Southern Provinces, in which the forest and jungle contain bamboo undergrowth."

To the above excellent account we may add that Phillips has found some nests of this bird lined with the mid-ribs of small leaves and that very often he has also found the staple material for the outer part of the nest to consist of bamboo-leaves.

They breed in every month of the year, the favourite months being those mentioned by Legge.

The eggs are always two only in number and could not be distinguished from those of the other races.

Two rather unusual clutches are: one pair with pale chestnut spots instead of the dark brown or reddish-brown, and another pair very small and densely marked like *Dumetia* eggs.

Thirty eggs average 19.6×13.7 mm.: maxima 21.3×13.9 and 19.1×15.2 mm.; minima 17.8×13.5 and 18.3×13.3 mm.

Schœniparus dubius.

THE TIT-BABBLER.

(297) **Schœniparus dubius dubius** (Hume).

THE TENASSERIM TIT-BABBLER.

Schœniparus dubius dubius, Fauna B. I., Birds, 2nd ed. vol. i, p. 283.

This Tit-Babbler is found from the North to the South of Tenasserim.

Since Davison obtained his nests in Tenasserim the only ones taken appear to be three collected for me in February and March by one of my collectors. Davison's notes in Hume's 'Nests and Eggs' read:—"On the 21st February I took a nest of this species on Muleyit Mountain containing two eggs, and out of the female which I shot off the nest I took another egg ready for expulsion.

"The nest was a large globular structure, composed externally of dried reed-leaves, very loosely put together, the egg-cavity deep and lined with fibres. It was placed on the ground close to a rock, and at the foot of a Zingiberaceous plant, and rather exposed to view. The nest was not unlike that of *Pomatorhinus*, but of course considerably smaller, not so much domed, and with the mouth of the egg-cavity pointing upwards.

"A few days later I took a second nest on the 25th, quite similar in shape and materials to the first one, but placed several feet above the ground, in a dense mass of creepers growing over a rock. It was quite exposed to view and from a distance of 3 or 4 feet the eggs were quite visible.

"There were three eggs in the nest, similar to those in the first nest."

Two clutches of four and one of three sent me from near Muleyit have only the following brief note on the nests:—"The nests were domed or semi-domed and made of dead leaves—mostly bamboo, grass, and roots, and lined with dead leaves. All were placed on the ground in among grass or undergrowth in bamboo-jungle and thin open forest." Other incomplete clutches of two eggs were sent later but with no note beyond "nests same as before."

It is not certain where the two forms *mandellii* and the present meet, and nests and eggs obtained in Lower Pegu may be one or the other, though probably true *dubius*.

This subspecies apparently breeds from February to March and, if the Pegu birds are the same, in May.

The full clutch seems to be either three or four. The eggs are quite unlike any of those of the Babblers previously described and remind one very much of the eggs of English Blackcaps and Garden-Warblers. Having only small series of this subspecies it may suffice to say here that they are exactly the same as those of the much better-known Assam Tit-Babbler, of which I have seen many hundreds and which I describe at length under the nomenclature of that bird.

Thirty eggs average 20.5×15.9 mm.: maxima 22.1×16.0 and 20.5×16.4 mm.; minima 19.2×15.5 and 21.4×15.1 mm.

(298) *Schoeniparus dubius mandellii* Godw.-Aust.

THE ASSAM TIT-BABBLER.

Schoeniparus dubius mandellii, Fauna B. I., Birds, 2nd ed. vol. i, p. 284.

This is the best known of all the Tit-Babblers, being extremely common in the whole of Assam, South of the Brahmapootra and in the Chin Hills, where so many keen field-naturalists have worked. How far South in Arrakan it is found we do not yet know but, somewhere in the Pegu Yomas, it meets and grades into the preceding typical form. It seems possible, indeed probable, that the Irrawaddy forms its Eastern boundary and true *dubius* may work some way North in the Pegu Yomas towards the habitat of *genestieri*, a third race of the same species.

The Tit-Babblers are to be found in almost any kind of jungle so long as it is thick enough, but they seem to prefer both thick and open evergreen forest with lots of undergrowth, especially bracken and brambles. It may also be frequently seen in Winter in pretty thick bamboo-jungle and in scrub and secondary growth but, during the breeding season, seems to desert these latter and to keep to the more humid forests. I have found it common between 3,000 and 6,000 feet, while it certainly ascends a good deal higher than this, as I saw them in the adjoining Naga Hills at least 2,000 feet higher. It may occasionally occur lower than 3,000 feet but I have not personally come across any instances.

In the Chin Hills Mackenzie says:—"It is very common and can be seen on any fairly open bank, *i.e.*, without big trees, but with thick undergrowth, especially grass."

In Assam I found the favourite site for the nest was a bank or steeply sloping ground in forest, where it was built, quite concealed from view, in among bracken or among bracken and grass mixed. The nest was always either actually on the ground or else placed on dead leaves and fallen rubbish, raising it a few inches above the wet earth. The side selected was often very wet and the bottom of the nest was more often than not soaked through, though the real lining was generally dry. The nest was not unlike a rather small, perhaps unusually neat, nest of a *Pomatorhinus*. Compared with the bird it was decidedly large, my measurements of a big series of nests averaging about 7 by 5 inches in outward length and breadth. The oval stands upright or, nearly so, and the mouth is near the top, large and ill-made and roughly finished off. In some nests, indeed, the mouth occupies so much of the side of the top that the nest looks only semi-domed or a deep cup in shape. The materials consist of bamboo-leaves, grass, a few grass-stems and roots and, sometimes, a few dead leaves of trees. There always seems to be quite a good lining to this Tit-Babbler's nest. First there are a good many coarse and fine fern-roots and then, on the top of these, there is a layer of dead

dry leaves which keep dry however soaked the outer materials may be. Sometimes the nest is made entirely of bracken-leaves and fern-leaves outside, this being particularly the case when the nest is built among bracken. I have only seen one nest being built but, though both birds were noticed bringing material and both disappeared into the patch of bracken in which their nest was placed, I could not see if both birds took part in its construction. Male and female certainly take part in incubation, for we have repeatedly caught the two sexes sitting on the eggs.

Both in Assam and in the Chin Hills they breed throughout April, May and June, but their breeding season seems quite a well-defined one, and I appear to have no records of eggs taken in other months.

Their eggs, as I have already said, bear a strong superficial likeness to those of the Blackcap and Garden-Warbler, and the general impression given by the egg is that of a yellow-brown one, smearingly blotched with darker brown. The ground-colour varies from the palest clay-white to a distinct deep clay-colour, sometimes with a faint tinge of brown. The primary markings consist of a few deep brown spots, one or two short irregular lines and, perhaps, a smeary blotch or two. Underneath there are numerous smears and smudges of brown, lighter in colour and often looking as if they had run. Under all these come numerous smudges, blurs and faint blotches of grey and neutral tint. There is not much variation. Some eggs are darker and more heavily blotched, others are paler and have fewer deep brown blotches and, in a very few, the brown has a slightly olive tinge. The only really exceptional clutch I have taken is one with a very pale cream-white ground, with a few large blotches of pale olive-brown at the larger end.

In shape the eggs are broad ovals, little compressed and blunt at the smaller end. The texture is fine and close, fairly stout, and there is little or no gloss.

Two hundred eggs average 20.8×15.6 mm.: maxima 22.0×16.0 and 19.5×16.1 mm.; minima 19.4×15.3 and 19.9×14.4 mm.

The normal clutch is three or four, but Mackenzie, Hopwood and I have all occasionally taken five eggs in a nest.

(299) *Schœniparus dubius genestieri* Oustalet.

THE SHAN STATES TIT-BABBLER.

Schœniparus dubius genestieri, Fauna B. I., Birds, 2nd ed. vol. i, p. 285.

This, the Eastern form of Tit-Babbler, is found in the Kachin and Bhamo Hills, Yunnan, Shan States and S.W. China. It seems to be found at all elevations above 5,000 up to 10,000 feet, as Forrest took a fine series at 8,000 and 9,000 feet in Yunnan in the Lichiang-Salwin Divide and two young birds at 9,000–10,000 feet.

The nests and eggs of this Tit-Babbler have been taken by Harington, Hopwood, Mackenzie and Pershouse in the Bhamo Hills between 4,000 (exceptional (Harington)) and 6,000 feet and by J. P. Cook in the Shan States at about 6,000 feet. Cook's description of the country embraces practically all that has been recorded hitherto. He says :—" I did not find this bird at Kalaw but some 2,000 feet higher up. The sort of place I found it in was dense scrub, bracken and grass, one or the other, or all, in the more open forests and in the patches between the cultivated plots, consisting chiefly of longish grass, wild raspberry bushes, and a sprinkling of secondary bamboo; the ridges are rather rocky, the vegetation consisting nearly entirely of oak trees and long grass."

Major Pershouse found nests at Sinlum Kaba, at about 5,500 feet, containing three or four eggs. He describes the nests as " dome-shaped, loosely made of bamboo-leaves and grass, built on the ground at the foot of a bank among a tangle of undergrowth. There was a slight depression in the bank in which the nest had been built."

Harington gives a similar description of the nest but adds that there was often a lining of dead leaves, whilst the loose outer parts were sometimes bound together with " various roots etc."

The number of eggs laid is three or four, most often the former, and they are in every respect like those described for the preceding bird, though, as a series, they average paler in ground-colour. One set is very similar to a common type of the Red-throated Tit-Babbler, a very pale yellow-stone or yellow-grey ground-colour with clouds of indefinite smears and blotches of pale sepia-grey.

The breeding season extends, so far as we know at present, from the beginning of March to the end of April.

Twenty eggs average 19.9×15.5 mm. : maxima 21.2×15.8 and 21.0×16.9 mm. ; minima 18.8×14.5 mm.

Major Pershouse says that this little Babbler often feigns injury in order to entice intruders away from the vicinity of its nest.

Schceniparus rufigularis.

THE RED-THROATED TIT-BABBLER.

(300) Schceniparus rufigularis rufigularis (Mandelli).

THE ASSAM RED-THROATED TIT-BABBLER.

Schceniparus rufigularis, Fauna B. I., Birds, 2nd ed. vol. i, p. 286.

The Red-throated Tit-Babbler was discovered in the Bhutan Duars, whence it spreads throughout the hills of the Outer Himalayas through Assam, North of the Brahmapootra, as far as Sadiya and Lakhimpur. It is also resident in the hills South of the Brahmapootra, Manipur and the Eastern Bengal hill-tracts.

Dr. Coltart and I found this Babbler very common in the Lakhimpur District all round Margherita in the foot-hills and broken ground for a mile beyond them. Stevens records it as common across the whole of the Assam Plains from the Naga Hills in the South to the Daffa Hills in the North, but neither Coltart nor I ever found it in the true plains country for some miles on either side of the Brahmapootra. It does not ascend the hills to any height to breed. No Nagas living in villages as high as 3,000 feet knew the bird or brought specimens to Dr. Coltart, whilst Stevens never came across it beyond the first few low ranges of hills on the North. Probably valleys at about 2,000 feet or a little over form its limits as to elevation.

Around Margherita we found it nesting not only in evergreen forest but far more often in small stretches of open forest, bamboo-jungle, scrub and secondary growth. The one thing necessary was ample cover, but what the cover was did not seem to matter much. The places in which we found most nests built were in the ravines running through the Tea plantations. These might be twenty feet across or they might comprise a conglomeration of small ravines, hillocks and broken ground a hundred yards or more across. In these places trees were few, and such bamboos as there were grew in little patches of a dozen or so. Everywhere else was a dense bush-jungle, in some parts three or four feet high and in others seven or eight. The places next most often resorted to were the stony hills, too broken and rough to be worth cultivating for tea, and covered with much the same growth as the ravines.

The nests were either placed actually on the ground or on fallen rubbish and leaves above it or, very rarely, down at the bottom of a bush or in a tangle of creepers and canes. One nest was shown to us in Margherita built in among the stems of a creeper growing very thickly over an old garden-post, in among a shrubbery in a garden. This, of course, was an exceptional occurrence, but the garden where it was built just adjoined one of the favourite ravines, whilst the actual spot where the nest was placed was a hundred yards or more from the house. There is not much attempt at concealment but lying, as it generally does, among a mass of leaves and debris similar to the materials of which the nest is made makes it very hard to see, and most of our nests were discovered by seeing the little bird, which sits very close, slipping off the nest as we came to it.

The nest itself is typical of that of the genus. It is domed and made of all kinds of dead leaves, including bamboo-leaves, and grass mixed with roots, moss and a few tendrils and lined first with roots and then with an inner layer of dead leaves. Sometimes the dead leaves are the only materials used for this purpose and the roots are omitted. They are better-made nests than those of the *dubius* group and are often more or less bound together with tendrils, fine elastic weed-stems and long roots but, even

so, they are loosely built affairs and soon tumble to pieces. Roughly they may measure between 5 and 7 inches in their vertical diameter by 1 inch or so less in their horizontal diameter. The egg-cavity barely measures 2 inches across.

They are early breeders; Coltart found nests in the end of March and most of our nests were taken in April, a few being obtained in May. One year we took several nests in June but this was in a year when there had been storms and sufficient rain in April to temporarily wash out some of the ravines, and these were all probably second nests.

This species, unlike *dubius*, very seldom lays four eggs, three being the almost invariable clutch. The eggs are much the same as those of *Schaeniparus dubius* but, as a series, they are much paler, less brown and more grey both in ground-colour and in their markings.

One hundred eggs average 19.5×14.7 mm.; maxima 21.1×15.3 and 21.1×15.7 mm.; minima 17.3×14.0 and 18.4×13.9 mm.

(301) *Pseudominla cinerea* (Blyth).

THE DUSKY-GREEN TIT-BABBLER.

Pseudominla cinerea, Fauna B. I., Birds, 2nd ed. vol. i, p. 287.

So far as I know there is nothing recorded as regards the breeding haunts of this Tit-Babbler but it is known to be resident and must breed over the outer Himalayan ranges from Nepal to Eastern Assam, both North and South of the Brahmapootra. In Sikkim Stevens says that it is very locally distributed in the valleys of the outer ranges up to about 4,000 feet, whilst in the Dafia, Abor and Miri Hills he did not meet with it in the lower outside hills below 3,000 and observed it up to 5,000 feet.

In South Assam it was common from about 3,500 feet to the tops of the highest hills provided there was fairly open forest with undergrowth. In the Naga Hills it certainly sometimes breeds up to 7,000 feet.

Most nests are placed on the ground only, yet well concealed by their resemblance to their surroundings. Some are placed in bamboo-clumps growing in forest- and bamboo-jungle, whilst others again we found on the ground between boulders and well hidden in ferns and bracken or by overhanging plants and orchids. This was especially the case in the wet humid valley of Laisung at 3,000 to 4,000 feet and the equally humid Rhododendron forest on the Shillong Peak at 6,000 feet. They were common in both these places but I have never seen a nest in Pine forest.

The nests are of rather varying type, but I can add little to my description given in 'The Ibis' (1895, p. 62):—

"Three nests taken in July were all shaped differently and show well the forms to be met with and the materials used in their

construction. One was a very deep cup about 4 inches deep by 2.5 in diameter externally, the cavity measuring about 2.5 by 1.5 across at the widest part, and about 1.2 at the top, where the materials were drawn closer together by the weeds and roots used to bind them. The whole of the nest was of bamboo-leaves and fern-fronds, all dry and dark coloured, bound together with fern-roots and weed-stems and lined with very fine shreds of grass and a few fine fern-roots.

"The next nest was like the common form, already described, of *Schoeniparus*, but the side which was prolonged was more bulky, and even more brought forward and downward, so that the nest was almost more than semi-domed. The materials employed were much the same as in the last, but no fern-roots were used in the lining. The nest measured about 5" in height by about 1.8", the entrance being 1.2".

"The third nest was completely domed, but otherwise differed in construction from the other two merely in having no grass in the lining, this being of fern- and moss-roots only. It measured 5.2" high by 2.8" broad, the inner diameter being about 1.7".

"Many nests have the dark damp appearance of the nests of *Schoeniparus*, but others are quite light-coloured, the bamboo-leaves being of the usual yellow colour and not in a damp rotten stage of decomposition. They are generally placed in bamboo-clumps either low down or some two or three feet from the ground in the thick bunches of twigs which grow out of the first few nodes. I, however, took two nests in evergreen forest which were both placed in among the roots of a thick cluster of plants, though not resting actually on the ground."

The breeding season is May and June, it being quite exceptional to find nests earlier or later, so they cannot have two broods in the year.

The full clutch of eggs is four and they are remarkably consistent little birds in this also. I have never seen a five, while three only is not common.

The eggs vary a good deal. The most common type has the ground-colour a pale buff to rather warm buff, the whole surface being stippled with reddish-brown, these stipplings coalescing to form a dense well-defined ring round the larger end. In some eggs the buff ground is replaced by very pale cream-white or greyish-white; the stipplings have no red tint but are distributed in the same way. I have one clutch which may be considered an extreme type, pure white with fine rings of dark brown freckles which are sparse elsewhere. Intermediate between these every shade of ground-colour and stipplings occurs but the rings are constant in this type. Rarely the stipplings are replaced with larger markings, almost blotches, and still more rarely they are more like ill-defined mottlings, making the eggs look like miniatures of those of *Schoeniparus*.

In shape the eggs are broad ovals, often compressed towards the smaller end but very seldom at all pointed. The texture is fine and close but more fragile in proportion to their size than those of *Schœniparus*. As a rule there is no gloss yet, in one or two clutches in my collection, it is well developed.

Sixty eggs average 18.3×14.3 mm. : maxima 19.0×14.3 mm. ; minima 17.4×14.1 and 17.9×13.0 mm.

***Pseudominla castaneiceps*.**

THE CHESTNUT-HEADED TIT-BABBLER.

(302) *Pseudominla castaneiceps castaneiceps* (Hodgs.).

THE SIKKIM CHESTNUT-HEADED TIT-BABBLER.

Pseudominla castaneiceps castaneiceps, Fauna B. I., Birds, 2nd ed. vol. i, p. 288.

¶ The exact range of this Chestnut-headed Tit-Babbler is doubtful and, with more material, the Burmese Southern form will almost certainly have to be separated. At present it is supposed to extend from Nepal, Sikkim and Assam, North of the Brahmapootra, through the North Chin and Kachin Hills into the Shan States and hills of East Central Burma to Tenasserim.

This is a Tit-Babbler of high elevations. Stevens (Journ. Bomb. Nat. Hist. Soc. vol. xxix, p. 739, 1923) says that it is generally distributed between 3,500 and 10,000 feet according to season, and that it was commonly observed in Shamdong and Singtam at 2,400 (Winter). He found it breeding plentifully at 5,000 feet. It is a forest bird, breeding in forests of big trees and, so far as is at present recorded, never breeding elsewhere. Stevens obtained it in the Abor-Miri Hills "above the range of *Pseudominla cinerea*."

The nests and eggs of this bird are described in Hume's 'Nests and Eggs,' vol. i, p. 118, but some of the descriptions do not apply at all to this bird. Hodgson's nest and eggs are so different from the real thing that we need not refer to his description.

Gammie's nest is, however, correct and is exactly like some found by Osmaston and Stevens in Sikkim except that it was not domed. He writes:—"A nest of this bird, with one fresh egg and female, was brought to me in May. The man said he found the nest in the Rungbee forest, at 6,000 feet, among the moss growing on the trunk of a large tree, a few feet from the ground. It was a solid cup, made of green moss, with an inner layer of fine dark coloured roots and lined with grassy fibres. Externally it measured 4 inches in width by the same in depth; internally 1.5 wide by 1.25 deep."

Both Osmaston and Stevens found nests which very closely agreed with this but all Osmaston's and all but one of Stevens's were domed.

Osmaston says : " These little birds are common in the forests from 6,000 to 8,000 feet.

" I found a nest of this species on the 25th of May at about 6,500 ft. on Mt. Tonghe (Sikkim). It was built up against a moss-covered trunk of a tree, 9 ft. from the ground. It was domed and roughly spherical, 6" in diameter, and composed externally of moss, followed by a layer of dry bamboo leaves and lined scantily with black hair-like rhizomorph."

Stevens describes his nests as domed with one exception and as " very loose bulky structures composed of moss, dead leaves and grass, the first-named forming the base of the nest. Taken at elevations between 5,500 and 7,000 feet."

Davison found two nests of the Tenasserim bird in February and, curiously enough, one was domed and one cup-shaped. One nest was placed like those already described in the moss against a tree-trunk in dense forest " beautifully worked into the moss growing on the trunk, and it was only with considerable difficulty, and after looking for some time, that I found it. The egg-cavity of this nest was also lined with fibres and dried bamboo leaves.

" The cup-shaped nest was placed about 5 feet from the ground, in a mass of creepers growing up a sapling."

In the North of India all the properly authenticated nests have been taken in May and June, whilst in Tenasserim Davison took both of his in February.

The full complement of eggs seems to be four, sometimes three only.

The ground is a dead chalky-white, very seldom smoother, and with a slight gloss. The primary markings consist of fair-sized blotches of inky-black with equally numerous secondary markings of pale inky-lavender. Both kinds of markings form well-marked rings round the larger end of the egg and are sparse elsewhere. In some the rings are not quite so well defined and the markings are also more numerous over the rest of the surface, whilst in a few others they are strictly confined to the one dense ring. In a few eggs there appears here and there a brown dot or blotch. They are decidedly handsome eggs.

In shape they are broad or normal ovals, not much compressed, and never pointed at the smaller end.

Twenty-eight eggs average 17.7×13.4 mm. : maxima 18.3×13.3 and 18.1×14.2 mm. ; minima 17.0×12.9 mm.

(303) *Pseudominla castaneiceps brunneicauda* (Sharpe).

THE SHILLONG CHESTNUT-HEADED TIT-BABBLER.

Pseudominla castaneiceps brunneicauda, Fauna B. I., Birds, 2nd ed. vol. i, p. 289.

This little bird is confined to the Khasia and Cachar Hills, probably occurring also in Manipur, where it is very common

from about 3,000 feet to the summit of the highest hills, somewhere about 6,200 feet in the Khasia Hills and a little lower in the Barail Range in Cachar. It probably is not found far along the Naga Hills ranges to the East but I met with it in the forests on the borders of North Cachar up to 7,000 feet.

So far as I know it is, in the breeding season at all events, purely a forest bird. In the lower hills it keeps much to the very thick forest of giant trees with an undergrowth of all kinds of bushes, creepers and brambles but, at 5,000 feet in North Cachar, it breeds freely in the rather stunted Oak forest, where the undergrowth is not nearly so dense. Here the ground is much broken up with rocks and boulders and the hills are generally very rugged. Although the bush-jungle, except in patches, is not very thick, there is everywhere bracken, ferns of all kinds, as well as an endless variety of orchids covering every tree and mingling with the long green streamers of moss which hang from every branch.

In these places the Chestnut-headed Tit-Babbler makes its nest. It may be placed on a sloping moss- and bracken-covered bank actually on the ground or in a bush or clump of creepers a few inches or even a few feet above it. Its favourite site, however, is one well hidden in creepers climbing up one of the forest trees; in these it may be placed at any height under ten feet but, most often, it will be found four or five feet up. Sometimes but, proportionately, not nearly so often as with the Sikkim bird, the nest may be built of, and in, the long green moss hanging from the trunk of an oak. More often it is snugly hidden under a clump of ferns or orchids, hardly to be discovered unless the bird flies from it as one passes by. One very beautiful nest found by me was placed in the very heart of a great clump of *Dendrobium chrysotoximum*, the great yellow blossoms hanging over it in a golden cascade. In the broken rocky hills the nests placed on the ground are sometimes found hidden in among the masses of brambles and creepers which climb over the rocks and rest as much on the creepers as on, or against, the rocks.

Three out of every four nests are domed and the fourth may be semi-domed or a very deep cup. The materials vary even more than the shape but, in almost every nest, there is a great deal of moss, dry or green, and in most nests there is a strong inner part of bamboo-leaves, dry dead leaves of trees or broad blades of grass. In the average domed-shaped nest the outer part looks far more moss than anything else but, when pulled to pieces, will be seen to consist of bamboo-leaves, bracken-fronds or broad grasses placed criss-cross over one another, with moss constantly fixed over and between these materials. Then comes a layer without moss and, finally, a lining of roots or grasses. When the nests are made in trees covered with long, dry, but green, moss the nest is sometimes made entirely of this material though most such nests still have a number of leaves and grass placed in between the lining and outer shell.

The nests are carefully hidden and, as the entrances are sometimes placed on the inner side of the nest, next to the tree, rock or bank on which they are built, they are very hard to find. Such nests, indeed, I seldom found unless the bird flew out when I hit the tree with a stick on passing.

They breed in May and June but I have also taken eggs in late April and up to the third week in July.

The eggs almost invariably number four, occasionally three only, and never five. In colour they are, on an average, much more like the eggs of the Dusky-green Tit-Babbler than they are those of the preceding bird, their much nearer relation. Most clutches can be absolutely duplicated with others taken from the nests of the Green Tit-Babbler, a few are intermediate between the eggs of this bird and the Sikkim Chestnut-headed bird, whilst I have only one clutch, out of some dozens, which has the same chalky-white ground and bold ring of inky spots round the larger end which one nearly always finds in the eggs of that bird.

Sixty eggs average 18.0×13.5 mm.: maxima 19.0×14.1 mm.; minima 17.0×13.4 and 17.2×12.8 mm.

The birds are very close sitters, often refusing to leave their nests until the tree on which they are built has been struck more than once. When they are placed above one's head they seem particularly loth to leave but, when on the ground among low rocks or in low bushes, they leave a little more readily.

Both birds incubate and I have trapped both sexes on the nest repeatedly. I do not remember ever to have watched this species building, so cannot say what part the male takes in construction.

Fulvetta vinipecta.

THE WHITE-BROWED FULVETTA.

(304) *Fulvetta vinipecta vinipecta* (Hodgs.).

THE NEPAL WHITE-BROWED FULVETTA.

Fulvetta vinipecta vinipecta, Fauna, B. I., Birds, 2nd ed. vol. i, p. 290.

This, again, is one of the Babblers breeding on the higher outer hills of the Himalayas, from some 7,000 to 10,000 feet, from Nepal, Sikkim and the ranges North of the Brahmapootra to the East of Assam. It is very common in parts of Sikkim from 7,000 up to 11,500 feet (Sandakphu, Stevens). Stevens also observed it at 6,500 feet and (Sonada) 6,700 feet in May, so that it was probably breeding at that level.

As usual, even when descriptions of nests and eggs are ample, records of the type of country in which these are found are meagre and wanting, but in this case a certain amount of information on this point is available. Mandelli took his two nests "in dense

brushwood" and Stevens also found them breeding in "scrub jungle." Osmaston, who took numerous nests of this Babbler, writes:—"Fulvetta is not a forest bird; it is found in open low scrub, generally resulting from the destruction of forest by fire. I found them common and breeding on Singile La Ridge at about 11,000 feet above Darjiling in the low Ringal bamboo scrub which is grazed down to a height of about 18 inches to three feet high. The normal Ringal thickets are some ten to twelve feet high and are not frequented by Fulvetta. In the hills of Tehri Garhwal I found this bird breeding in low scrub but especially in dwarf willow. In Sikkim I took nests at heights ranging from 8,000 feet near Darjiling to 11,500 feet on the Singile La Ridge; in Tehri Garhwal I took them between 9,400 and 10,500 feet.

"The nests are deep compact cups made of grass and moss, sometimes nearly entirely of the latter, and generally mixed with roots. The lining is always of hair and the nest is placed in one of the little stunted clumps of ringal between 18 inches and three feet from the ground, built into one of the forks or fixed into two or three of the dwarf culms. They have been all built in the grazed-down scrub referred to above with one exception, which was placed in 3 or 4 dwarf culms in a dense thicket of bamboos. The nests are very like those of reed-warblers in appearance."

The number of eggs laid seems to be always three and the usual breeding season is May and June. The eggs are a rather deep soft grey-blue in colour with a few blotches of black or, rarely, some freckles of reddish-brown at the larger end. Most eggs are immaculate elsewhere, but one or two have an odd spot or two or a blotch in the middle of the egg. The texture is very fine and close but glossless, and the shell is rather stout in proportion to the size of the egg. In appearance they are not in the least like one would expect to be laid by any Timaliine bird, and I know of no others at all resembling them.

Forty-nine eggs average 18.8×13.7 mm.: maxima 20.9×13.0 and 19.1×14.4 mm.; minima 16.6×12.3 mm.

(304 a) ***Fulvetta vinipecta kangræ*** Ticehurst.

THE SIMLA WHITE-BROWED FULVETTA.

Fulvetta vinipecta kangræ, Fauna B. I., Birds, 2nd ed. vol. viii, p. 606.

Ticehurst gives the distribution of his new race as "N.W. Himalayas (Dharamsala, Palampur, Patampur)." Col. H. T. Tytler also obtained it breeding on Talpani, a hill of about 9,000 feet, in Kuman. The country is described as open grass-covered hill-tops, with scrub- and bamboo-jungle in places. The Fulvetta was breeding in the scrub, the nest being in a bush about 2 feet from the ground.

A nest of this bird, with a skin and one egg, was sent to Hume by Capt. Blair from the higher wooded hills between Simla and Kotegarh. Hume describes the nest as follows :—

“The latter was a rather compact, massive cup, composed of moderately fine blades of grass, measuring externally about 4 inches in diameter and standing about $2\frac{1}{4}$ inches high. The egg-cavity, about 2 inches in diameter and rather more than half an inch deep, was lined with fine blackish-brown grass-roots.”

Although the egg is undoubtedly a *Fulvetta* egg and quite normal, either the nest must be an abnormal one or there was some mistake made. Col. Tytler's nest, which he took at Talpani, is described by him as a “small very deep cup of moss lined thickly with fine hair.” This is what we should have expected the nest to be.

The two eggs in this latter nest are quite typical *Fulvettas* and indistinguishable from many of those of the preceding bird. The ground-colour is a very beautiful soft blue-grey, the larger end having a very indefinite ring of large dark brown blotches mixed with a few of inky-brown. On the rest of the egg there are one or two similar but smaller marks. There is no gloss and the eggs are squat ovals in shape.

Blair's egg measures 18.5×14.0 mm.; Tytler's two eggs 16.8×13.0 and 17.0×13.1 mm.

The two latter eggs were taken on the 13th May in dense undergrowth of tall tree-forest.

(306) *Fulvetta vinipecta ripponi* Harington.

THE CHIN HILLS WHITE-BROWED FULVETTA.

Fulvetta vinipecta ripponi, Fauna B. I., Birds, 2nd ed. vol. i, p. 291.

This *Fulvetta* is confined to the high ranges of the Chin Hills occurring on Mt. Victoria up to 9,000 feet.

Nests and eggs of this subspecies were taken by Grant on the 12th May, 1914, and 30th April, 1915, whilst on the same date in 1916 another nest was taken by Wickham.

Wickham writes me :—“Fort White is, I believe, about 7,000 ft., and the nest I found was about 7,500 ft. in fairly dense evergreen jungle which caps all these hills above the Pine- and Oak-growing elevation.” The nests are described as “made of grass and leaves thickly bound together with green moss, the leaves only showing through in patches here and there; the lining was of fine roots and in shape the nests were rather deep well-made cups. They were placed in low bushes in forest.”

The eggs are like those of *Fulvetta vinipecta* but the single egg measures 17.1×13.1 mm., whilst the eggs in the two-clutch measure 16.3×13.0 mm., both eggs being almost exactly the same in size.

Lioparus chrysotis.**THE GOLDEN-BREASTED FULVETTA.****(309) Lioparus chrysotis chrysotis (Hodgs.).****THE HIMALAYAN GOLDEN-BREASTED FULVETTA.**

Lioparus chrysotis, Fauna B. I., Birds, 2nd ed. vol. i, p. 293.

Lioparus chrysotis chrysotis, ibid. vol. viii, p. 606.

The Golden-breasted Fulvetta is found on the higher ranges of Assam, both North and South of the Brahmapootra, Manipur, Nepal and Sikkim.

Hodgson's notes as quoted by Hume appear to be the only record of this bird's breeding. Hume summarizes the notes thus:—

“The Golden-breasted Tit-Babbler breeds, according to Mr. Hodgson's notes, near Darjeeling and in the central regions of Nepal. It lays from three to four eggs, which are figured as somewhat broad ovals, measuring 0·7 by 0·5, with a pinky white ground, speckled and spotted thinly, except near the large end, where there is a tendency to form a cap or zone, with brownish red. The nest is oval or rather egg-shaped, and fixed with its longest diameter perpendicular to the ground in a bamboo clump in between a dozen or so of the small lateral shoots, at an elevation of only a few feet from the ground. One taken near Darjeeling on the 12th June measured externally 6 inches in height, 4·5 in breadth and 3 inches in depth, and on one side it had an oval aperture 2·5 in height and 1·75 in breadth. It appeared to have been entirely composed of dry bamboo leaves and broad blades of grass interwoven, and with a little grass and moss-roots as lining.”

The nests and eggs taken by Mr. Stevens and recorded in the ‘Fauna’ are not, he is now satisfied, the eggs of this bird. At the same time he is equally assured that the birds were undoubtedly breeding in the vicinity during May and June at about 9,000 feet.

Heterophasa picoides.**THE LONG-TAILED SIBIA.****(310) Heterophasa picoides picoides Hodgs.****THE NEPAL LONG-TAILED SIBIA.**

Sibia picoides picoides, Fauna B. I., Birds, 2nd ed. vol. i, p. 295.

Heterophasa picoides picoides, ibid. vol. viii, p. 600.

This Sibia extends throughout the hills and mountains of Nepal, Sikkim, Assam and practically the whole of Northern Burma to Tenasserim. In Assam it frequents forests between 3,000 and 6,000 feet; in the Chin Hills it occurs up to at least 7,000 on

Mt. Victoria; whilst in Sikkim, according to Stevens, it is a low-level bird, and he considers Oates's estimate of 5,000 feet as too high for this Sibia. He observed it in the Teesta Valley at 1,800 feet and nearly as low at Namsoo, but this was in Winter and it may breed much higher. In North Lakhimpur it should be noted that Stevens observed it in the foot-hills and plains in Winter, but did not come across it in the breeding season. It frequents forests and especially coniferous forests, where it breeds in the Pines, placing its nest high up in thick bunches of needles, making it a very difficult nest to find even after one has located the birds and know that they are breeding.

The eggs and nest recorded by Hume as being those of this Sibia are certainly not the eggs of this species or any other bird of this group, as Hume evidently thought when he wrote about them. Since then Stevens has taken several nests, and these, as we would have expected, show a very close likeness to those of its nearest relations. They were all taken in the Rangbong Valley at low elevations, *i.e.*, somewhere between 3,000 and 5,000 feet, nearer the lower than the higher*. Of the nests, of which I have notes by Stevens, one is described as "cup-shaped, as deep as wide, made entirely of green moss and lined with rhizomorph, measuring about six inches in diameter by about the same in depth externally. Placed high up on horizontal branch of fir tree and well and compactly put together. It could not be seen from the ground and was most carefully hidden."

Two other nests are described as rather wide, shallow saucers of green and brown moss, in one case mixed with a few tiny twigs, and both lined with rather coarse moss-roots, in one nest all black, in the other black and red. Both nests were built in tufts of needles and quite concealed from sight, almost on the tops of the Pine-trees. Two of the sets given to me were taken in April and one in May, whilst others, now in Mr. Stevens's own series, were taken in the same months.

The eggs are exactly like those of the Grey Sibia and, as with those of that bird, there is a not very uncommon erythristic type.

In the ordinary form the ground-colour is a very pale grey-green and the whole surface is rather freely marked with small blotches of light reddish-brown, slightly more numerous at the larger end. None of the blotches are of any size, most of them being tiny freckles with rather a longitudinal character. The erythristic eggs are white tinged with pale pink, and are marked in exactly the same manner as the other eggs but with pale red instead of reddish-brown. About one clutch in every three appears to be erythristic, as Stevens has several in his own series. The five eggs given to me by him are ordinary to broad ovals, all rather pointed at the smaller end. They average 24.5×18.1 mm.

The texture is soft and fine, very smooth but without any gloss.

* The height of 8,000 feet given in the 'Fauna' is a misprint for 3,000.

***Leioptila capistrata*.**

THE BLACK-HEADED SIBIA.

(311) *Leioptila capistrata capistrata* * (Vigors).

THE SIKKIM BLACK-HEADED SIBIA.

Leioptila capistrata capistrata, Fauna B. I., Birds, 2nd ed. vol. i, p. 296.

Hartert designated Darjiling as the type-locality of this race, and, accepting this, the race ranges from Naini Tal all along the Outer Himalayas to the Dafia Hills, breeding at elevations between 5,000 and 9,000 feet, generally under 7,000 feet.

This is a bird of high tree-forest, both coniferous and otherwise, apparently preferring broken ground and ravines in high evergreen forest, with bush undergrowth, for it builds its nest both on high and small trees and on high bushes.

Marshall took its nest at Naini Tal on Agar Pata, at an elevation of about 7,000 feet. This nest was "a very compact and thick cup-shaped structure of moss, grass, and roots, lined with grass, and placed amongst the outer twigs of a blackberry bush overhanging a cliff. It was ready for the eggs on the 23rd May."

From 1901 onwards Whympers took a series of nests and eggs; the former he describes as deep, massive cups, of moss, grass and roots, sometimes built in a high bush, some 8 feet from the ground, and at other times placed in small trees about 20 feet up.

In Sikkim Gammie took two nests in the Chinchona reserves, at about 5,000 feet elevation, one in a branch of a tree about 15 feet above the ground and the other in a branch about 40 feet up. Both nests were "cup-shaped and very neatly made of moss, leaves and fibres, and lined with black fibres. One measured externally 4.6 in diameter by 2.75 in height, and internally 2.4 in diameter and 1.7 in depth. The nests were in forest by the side of a stream."

A nest, with eggs, sent me by Masson was quite similar in shape but had some tiny twigs mixed with the moss in the outer walls. Masson found this nest on a tree in very thick evergreen forest on a small oak at about 9,000 feet elevation, but Stevens took a nest at under 5,000 feet in the Rangbong Valley in Sikkim; this latter was also in dense forest, in a tree about 30 feet up.

It breeds during April, May, June and July, laying two eggs or, less often, three.

* I use this name provisionally for the Eastern race, but in 1839 (J. A. S. B. vol. viii) Hodgson describes the Nepal bird as *Sibia nigriceps*, which was relegated by later writers as a synonym of *S. capistrata*. Then Gray resuscitated the name and, by inference, applied *capistrata* to the Western form. If *nigriceps* of Hodgson holds good, then *pallida* of Hartert would become a synonym of that name.

The eggs are very striking and very distinctive. The ground-colour is a pale bluish-grey and the surface is clouded, spotted and lined with various shades of brown. Hume describes these markings well. He says :—"First there are usually a few large, irregular, moderately dark reddish-brown spots and splashes ; then there are a very few, very dark, reddish-brown hair-lines ; then there is a good deal of clouding and smudging here and there of pale dingy purplish or brownish red, and then, besides these, are a few pale purple specks and spots." The spots and clouds are more numerous as a rule at the larger end but not in all eggs. As with so many of the *Sibias*, this bird also sometimes lays an erythristic type of egg ; in this the ground is a rather light creamy white and the markings are much redder.

Eggs intermediate between the normal blue-grey and the erythristic eggs occur, but are certainly rare, most clutches belonging quite definitely to one or the other.

There is also an abnormal type, of which I have one pair, taken by Whympers at Naini Tal, which is exactly like the normal eggs of the Grey *Sibia*, having the ground pale blue-grey freckled all over with reddish.

In shape the eggs vary between broad very obtuse ovals and rather long fairly pointed ovals. The texture is smooth but there is no gloss.

Twenty-four eggs average 24.4×18.3 mm. : maxima 26.0×19.4 mm. ; minima 23.2×17.9 and 25.0×17.7 mm.

(312) *Leioptila capistrata pallida* Hartert.

THE SIMLA BLACK-HEADED SIBIA.

Leioptila capistrata pallida, Fauna B. I., Birds, 2nd ed. vol. i, p. 298.

This Western race of *Sibia* is found in the N.W. Himalayas from Hazara to Garhwal, the hills of which seem to form its Eastern limit.

Dodsworth, in an excellent account of this bird (Journ. Bomb. Nat. Hist. Soc. vol. xxi, p. 249, 1911) thus seems up its general haunts :—"Hillsides and ravines covered with dense, moist forests, especially oaks and other large trees, thickly coated with moss, are its favourite resorts. . . . It is very abundant in the neighbourhood of Simla. It frequents the outer ranges of these mountains between 5,000 and 8,000 feet, but is most plentiful at about 6,000-7,000 feet. It is a permanent resident throughout its habitat."

Dodsworth's description of the nests is very full and Hume's, Marshall's and Hutton's descriptions of the nests they took are all covered by it :—

"The nests are generally built on trees or bushes on the edges of forest, though it is by means unusual to find them towards the middle, or in the heart of a thickly-covered hill-side.

"The nests are placed either at the ends of branches, or on one of the upper forks, or where several small twigs shoot upwards from a horizontal branch, and no matter what their position, they are, as a rule, well concealed. In fact they are very difficult nests to find, but the birds themselves sometimes give away the show by uttering a sharp twitter, if a person happens to approach too close to the tree containing the nest.

"So far as my experience goes, the trees which are preferred in Simla for nesting by these birds are either Oaks or Rhododendrons. Only once I have found a nest placed in a small Holly.

"The height of the nests varied from 8 to 60 feet, but the average of 17 nests was $26\frac{1}{2}$ feet.

"The nests are neat cup-shaped structures, composed exteriorly of a layer of moss, in which a good many leaves, strips of bark and cobwebs are occasionally incorporated, and lined interiorly with roots of the maidenhair ferns and other plants. One nest is of very unusual shape; it is something like an inverted cone, and it is $7\frac{1}{2}$ inches in height. It was placed against the trunk of a medium-sized Rhododendron, and was beautifully concealed by some twigs shooting at right angles from below it.

"The materials composing the nest are firmly interwoven together, and the structures themselves are securely attached to the surrounding twigs. Some of the nests situated at the extreme ends of branches appeared to occupy most precarious positions but I have never yet known one to be blown down by the wind.

"Both birds share in carrying materials and in building operations. I have, however, noticed, on one or two occasions, that the cock brought the materials, and the hen alone was the architect. Once a site has been chosen, building operations progress with great rapidity, but I have not yet been able to ascertain the exact length of time taken by the birds in constructing the nest. When the latter has been completed a very short period seems to elapse before the first egg is laid.

"These *Sibias* desert their nests on the least provocation. So far as my experiences go I do not think that the cock takes any part in the hatching of the eggs."

Mr. A. E. Jones also took many nests round about Simla at various elevations from 6,500 to 8,000 feet but, beyond the fact that most of his nests were built on Deodar-trees, there is nothing to add to Dodsworth's description.

Although I have never taken a nest myself I have had many sent me, and of these the measurements outwardly varied from 4 to 6 inches across and from 3 to 5 inches in depth, the cup for the eggs being roughly 3 by 2 inches or rather less.

A few birds nest in May but the majority of them breed during June and July. Dodsworth, however, found a nest with two young on the 9th of May, so that, occasionally at all events, they must lay in the last weeks of April.

They lay two or three eggs but this race lays three more often than two. In colour they are, of course, indistinguishable from those of the preceding subspecies, but I have one or two clutches which are rather unusual. One clutch of three taken by Rattray at Murree has the smudges and blotches rather smaller than usual but very densely distributed over the whole surface, whilst another pair has the blotches practically absent but the lines longer and more numerous than in any other set I have seen. Erythristic eggs occur among those of this *Sibia* as in those of the birds already dealt with but not, I think, so often.

Fifty eggs average 25.5×18.3 mm. : maxima 28.0×18.8 and 26.0×19.4 mm. ; minima 23.1×17.8 and 24.4×17.1 mm.

(313) *Leioptila gracilis* (McClell.).

THE GREY SIBIA.

Leioptila gracilis, Fauna B. I., Birds, 2nd ed. vol. i, p. 298.

This beautiful and graceful bird is found throughout the hills South of the Brahmapootra in Assam, Manipur and the Chin Hills between 4,000 and 7,000 feet. In the Khasia Hills it is common between 4,000 and 6,000 feet wherever there are Pine forests, to which it seems to be restricted.

Godwin-Austen took this *Sibia*'s nest in the Khasia Hills in the Umiam Valley at an elevation of about 4,000 feet. "In the pine forest that covers the slopes of the hills descending into the Umiam Valley in Assam, one of my men marked a nest on June the 25th ; I proceeded to the spot soon after I had heard of it, and on coming up to the tree, a pine, saw the female fly off, out of the head of it. But the nest was so well hidden by the boughs of the fir that it was quite invisible from below. The birds after a short time came back and then I saw it was *Sibia gracilis* ; but it was shy and, seeing us, went off again. The female, however, would not venture back and I sent one of my Goorkhas up, to cut off the head of the fir, nest and all, first taking out the eggs. It contained three eggs of a pale sea-green, with ash-brown streaking and blotchings all over.

"The nest was constructed of dry grass, moss and rootlets, and the green spinules of the fir were worked into it, fixing it most firmly in its place in the crown of the pine where it was much forked."

For more than fifty years no other nest of this bird was taken but, on my being posted to the Khasia Hills, I made a very special search for the birds and their nests. I soon found the former, already evidently paired and breeding, but the nest for a long time eluded both myself and my Khasias, first-class men, who knew the hill-birds and their habits well. Determined not to be beaten, we carefully examined the Shillong road to the Umiam Valley by which Godwin-Austen had travelled so many years

before, when he went to view the nest which had been marked down for him. There in the Pine-trees at the bottom of the hill, and just above the stream, a pair of birds were seen within a very few yards of where Godwin-Austen must have found his nest and, presently, in front of the watchers, one of these disappeared into the crown of a tall Pine just below where they stood by the side of the road. No nest was visible from any point from which the tree could be examined but, on tapping it, away went the bird, and within a very few minutes a Khasia had climbed the Pine and announced a nest with eggs.

After this every year we were successful in getting a few nests but, though the birds were common in some places, the nests were so hard to find that many must have escaped us. In one or two instances nests were built on small branches close to the main stem of the tree, but all the others were built into the crown of the Pine in the final clusters of pine-needles, which, surrounding them on all sides and built into the nests themselves, completely hid them from the closest scrutiny.

So far as I know the birds seem to have no special predilection for any particular kind of situation. As long as it is a Pine-tree they do not seem to care whether it is one in heavy or light Pine forest or whether it is one of a small cluster of trees standing on the outskirts of the heavier forest.

The nests are very well made deep compact cups, about six inches in diameter and about four in depth. The walls are made of moss-roots, a few leaves and fibres mixed with both dry and green moss and completely covered outside with the latter. Occasionally a few tendrils are wound through and under the outer moss but this is not always so. The lining is of a black fungoid rhizomorph or of fine roots, generally black moss-roots, sometimes mixed with a few red fern-roots.

Hopwood, Mackenzie and Wickham found them breeding in the Chin Hills at about 6,000 feet on Pine-trees. The nests seem to have been very similar to those found in the Khasia Hills, though Mackenzie describes the linings as being made of "fine grass, seed-stems and rootlets."

In the Khasia Hills they breed in May and June. One nest found on the 19th August was probably a second brood. In the Chin Hills they seem to breed late in April and early May.

The eggs number two or three, one as often as the other, whilst I have also seen about half a dozen clutches of four taken during the last thirty years, mostly by my Khasia collectors since I left India.

Nine eggs out of every ten are a pale bluish- or greenish-grey in ground-colour, lightly freckled all over with reddish-brown or dark brown, generally rather more numerous at the larger end than elsewhere and occasionally forming a denser patch—one cannot call it a cap—at the larger end, but I have seen no eggs in

which the markings form a ring. In density of marking and in depth of colour the eggs vary a good deal and some few eggs are very lightly marked. The next most common type is that in which the freckles become well defined though small blotches, less numerous than in the freckly type, and standing out much more than the freckles in contrast with the ground-colour. Aberrant eggs, in a few cases, show a close approximation to those of *L. capistrata*, whilst in others they are much like the eggs of *Actinodura*. Erythristic eggs occur occasionally among those of this species, the few I have seen having all been of the freckly type, the ground being white or pinky-white and the markings reddish.

Sixty eggs average 23.9×17.7 mm.: maxima 26.3×17.5 and 23.9×19.0 mm.; minima 22.0×17.5 and 22.5×16.6 mm.

Both sexes take part in incubation and in feeding the young. The male also assists in building, certainly bringing most of the material to the site and sometimes actually placing some of it in position. Both sexes have been several times trapped on the nest and they are easy to snare, though very shy and always refusing to return to it whilst anyone is in sight. They sit close but, when once disturbed, are very loth to return. Incubation probably takes fourteen days but I am not certain; three eggs found in a nest on the 20th June and looking as if absolutely fresh—there were only two on the 18th—were hatched on the 3rd, the chicks apparently just out of the shells, though these had already been taken away by the parents.

Leioptila melanoleuca.

THE BLACK-WINGED SIBIA.

(314) *Leioptila melanoleuca melanoleuca* (Tickell).

THE TENASSERIM BLACK-WINGED SIBIA.

Leioptila melanoleuca melanoleuca, Fauna B. I., Birds, 2nd ed. vol. i, p. 299.

So far this bird is only known for certain to be resident in Tenasserim, but how far North it extends is not defined. Harington (Journ. Bomb. Nat. Hist. Soc. vol. xxiii, p. 643, 1915) mentions it as reoccurring in the Shan States and in the Ruby Mines district. These may be the birds marked *radcliffei* in the British Museum collection.

The only record of it breeding is that of Davison, who "secured a nest of this species on the 27th February containing two spotted pale blue eggs, partly incubated. The nest, a deep compactly woven cup, was placed about 40 feet from the ground, in the fork of one of the smaller branches of a tree growing on the edge of a deep ravine.

"The egg-cavity of the nest is lined with fern-roots, fibres and

fine grass-stems; outside this is a thick coating of dried bamboo-leaves and coarse grass, and outside this again is a thick irregular coating of green moss, dried leaves and coarse fibres and fern-roots.

"Externally the nest measures about 5 inches in height and nearly the same in external diameter at the top.

"The eggs, a pale spotless blue, measure 0.95 (24.1 mm.) and 0.98 (24.9 mm.) in length by 0.66 (16.8 mm.) and 0.68 (17.3 mm.) in breadth."

(315) ***Leioptila melanoleuca radcliffei*** Harington.

THE TOUNGHOO BLACK-WINGED SIBIA.

Leioptila melanoleuca radcliffei, Fauna B. I., Birds, 2nd ed. vol. i, p. 300.

The distribution of this Sibia still requires working out. The three known Museum specimens are: two from North-East Central Burma, and now in the British Museum, and one from Tounghoo, which is in the Bombay Museum; Wickham says it is one of the common Sibias of the Shan States. He writes (Journ. Bomb. Nat. Hist. Soc. vol. xxxiii. p. 811, 1929):—"I have taken two nests of *radcliffei*; the eggs vary; in one case they were like my *gracilis* eggs in coloration, in the other a light blue ground very sparingly spotted. I should call them blackbird and thrush types, but the spots are dark red. One nest, 24th March, was built more against than on a branch of a pine tree, just out of ordinary reach. Pine needles and grass and a few leaves had been used with pine-needle lining, and it was coated outside with wool, giving the whole a greyish appearance; a bit of string and a bit of paper also decorated the outside. This nest was in the hedge of a house compound, the other, 28th March, being on a road-side tree. The structure measured 65 mm. inside and 105 mm. outside in diameter. I discovered they were early breeders, 2nd of March, by picking up a fully fledged young bird at the end of April the year before. The skins I sent home have been identified as *radcliffei*. It is particularly common round Taunggye, where I took one of the above-mentioned nests. It is a very quick rat-like mover amongst branches when feeding."

***Leioptila annectans*.**

THE CHESTNUT-RUMPED SIBIA.

(317) ***Leioptila annectans annectans*** Blyth.

THE SIKKIM CHESTNUT-RUMPED SIBIA.

Leioptila annectans annectans, Fauna B. I., Birds, 2nd ed. vol. i, p. 300.

This Sibia ranges from Sikkim to the extreme East of Assam, both North and South of the Brahmapootra, Manipur, Lushai Hills and the Chin Hills. This bird must be rare in Sikkim, where

Stevens failed to come across it, but it is said to inhabit elevations between 4,000 and 6,000 feet. One specimen was obtained in the Miri-Abor expedition. We did not obtain it about Margherita, though it must occur there, but it certainly is found and breeds in the Naga Hills between 5,000 and 7,000 feet, perhaps higher. In the North Cachar Hills it is resident all the year round between 4,000 and 6,000 feet, but even there it cannot be called common, whilst in the adjoining Khasia Hills it is rare and very local, a few flocks frequenting the very dense, humid Rhododendron and Oak forests along the ridge known as "the Peak" at 6,000 feet.

I have never seen this bird in anything but the wet evergreen forests and, even in these, it must have some green undergrowth and, for breeding purposes, a sufficiency of small trees on which to place the nest. It is found well into the interior of such forests and not, as with so many birds, only near streams and the more open parts.

The nest is usually placed on a branch of a small tree between 8 and 20 feet from the ground, in most instances being built in a fork of an outer branch, slender and difficult to get at without breaking the eggs. In North Cachar the nests were built on small, nondescript saplings in branches where they were easily visible, and no attempt seemed to be made by the birds to conceal them. In the Khasia Hills they were situated either in stunted Oaks, fairly well hidden, or in Rhododendrons. In these latter they were sometimes completely screened from view by the dense foliage, but they were also sometimes placed in a naked branch and fully exposed when thick patches of foliage were growing conveniently just alongside.

The nests are cup-shaped and very neatly and strongly built, with stout walls and well finished off linings. Roughly the nests vary between 5 and 7 inches in outward diameter and may be from 4 to 6 inches in depth, whilst the egg-cavity varies between 2 and $2\frac{1}{2}$ inches across by nearly the same in depth. Outwardly the nest appears to be all moss but, if more carefully examined, it is seen to have a few leaves, a thread or two of fine grass and, almost certainly, a few moss-roots mixed with the moss; inside the outer moss-wall there is a deep layer of grass, bamboo and other leaves and a few stems of weeds, well worked and twisted in together; sometimes there are a few scraps of moss also, but this is dry, not green, as on the outer walls. The lining is of fine fibres, roots or rhizomorph. The bird is not shy but does not sit very close on the nest; when, however, she leaves it she continues to fuss round close by, uttering a constant little "chirr-r-r," which soon draws attention to the nest if it has not already been noticed.

The breeding season is May and June and I have taken no nest that I can remember in April or July.

They lay normally three eggs but, sometimes, two only and occasionally four, though this number is exceptional.

The eggs vary considerably but are quite typical of the Sibias. The most common type has the ground-colour a very pale blue-grey or green-grey; the primary markings consist of blotches and smears of reddish-brown, sometimes very pale, with a strong dark outline; here and there are spots and short wavy lines of the same colour, while under these are secondary blotches and smudgy markings of pale lavender and pale brown. Generally the markings of both kinds are more numerous over the whole larger end but, occasionally, they are equally so everywhere. A second type is similar to this but has the ground a bleached yellowish-white or grey-blue white. A third type has the ground a bright pale blue, the markings restricted to a few very fine long lines of red-brown twisting here and there over the surface, in addition to which there are sometimes a few pale lavender spots. These latter eggs are just like miniature eggs of *Actinodura*, and it is interesting to note that an examination of a big series of the eggs of the various Sibias shows that nearly all aberrant eggs of one species can be matched by the normal eggs of another species.

One very beautiful clutch taken in the Khasia Hills contains two eggs more than usually heavily blotched, whilst another clutch of two is almost spotless.

In shape the eggs are moderately long ovals, generally well compressed towards the smaller end, which varies from normal to rather pointed.

Twenty-five eggs average 22.0×15.5 mm.: maxima 23.0×17.0 mm.; minima 21.0×16.0 and 21.4×15.1 mm.

In most Sibias' eggs the texture is fairly fine but not very close, and there is little or no gloss. The eggs of the *Leioptila* group are all rather fragile in proportion to the size of the egg, differing much in this respect from those of the Bar-wing, or *Actinodura*, group.

I have trapped both sexes on the eggs, so that it would appear that both assist in incubation. I have never seen a nest being built.

(318) *Leioptila annectans saturata* Walden.

THE SHAN CHESTNUT-RUMPED SIBIA.

Leioptila annectans saturata, Fauna B. I., Birds, 2nd ed. vol. i, p. 302.

Walden's *Sibia* is found in the hills of Eastern Burma, the Kachin Hills, Bhamo Hills, Shan States and Karenni between 3,500 and 6,000 feet in evergreen forest.

The only person who has ever taken its nest and eggs is Mr. T. R. Livesey, and I give his account of them in full:—

“Thirty miles or so to the North of Lashio in the Northern Shan States lies the Shan town of Hsenwi. A great precipice is visible to the North, where the Southern side of a wild and

rugged mountain top shows up, 4,000 feet over Hsenwi and some 8 miles distant by road.

"I went up this Peak in search of Serow and, having found a few tracks, I sat down to wait in the shade of the green forest which straggles up the North side of the mountain to a pass in the hill, at an elevation of about 6,000 feet. I was sitting there on a fallen log when I noticed one of these Sibias some ten yards away watching me anxiously and presently it flew to a small sapling close by, almost directly leaving again only to return once more, so that I began to suspect a nest. The bird peered at me from various points and then began to call in a subdued Sibia note so, getting up, I went to the tree to examine and then saw a nest on the top of it, about seven feet from the ground, on which the Sibia was sitting. She went off, so, having ascertained that the nest contained two eggs, I had, with the greatest reluctance, to shoot the poor little thing for the sake of identification. After being put off her nest the second time she scolded me from the tree-tops with an alarm note I cannot describe. She would be high overhead, 40 or 50 feet up, and then dive down to within a foot or two of the ground and work her way nearer to the nest. At times she would cling to a tree-trunk like a nuthatch, with her body in a horizontal position, peering anxiously at me. At last I had to shoot her and, picking up her poor little remains, took the nest and eggs.

"The large nest was made of fine roots etc. strongly built, the whole of the outside decorated with bright green moss; the lining was of black hair-like fern rachides and thick and well finished off.

"Two of the edges were drawn up into the green moss growing on the sapling, so that the nest was not conspicuous."

The two eggs are similar to those of the preceding bird, the ground-colour is a pale blue-grey with a few smudges and irregular blotches of pale brown and other secondary markings of pale grey and pale sepia. They measure 22.0×16.3 and 21.2×16.3 mm., and were taken on the 5th April.

Leioptila pulchella.

. THE BEAUTIFUL SIBIA.

(320) *Leioptila pulchella pulchella* (Gödw.-Aust.).

THE ASSAM BEAUTIFUL SIBIA.

Leioptila pulchella pulchella, Fauna B. I., Birds, 2nd ed. vol. i, p. 302.

This Beautiful Sibia is found only on the hill-ranges South of the Brahmapootra above 5,000 feet and it has also been obtained on the Torapatu Peak in the Daffa Hills. It did not breed anywhere

in either the Cachar or Khasia Hills so far as I know, and its nest is not likely to be taken much below 7,000 or 8,000 feet.

The only nest obtained up to the present is one taken by Mr. F. Field at Japhama, in the Naga Hills, at about 9,000 feet, on the 17th of May. The bird was first observed feeding in very thick evergreen forest on rugged broken ground and, later, one nest was found, containing a single egg, built on a horizontal branch of a small tree growing in the forest on a hill-side. Mr. Field writes:—"The nest was cup-shaped, made of moss, lined with roots and placed nearly at the end of the branch and very difficult to get at."

In colour the egg is a pale blue quite unspotted, in shape a regular oval a little pointed at the smaller end. The texture is fine and smooth but glossless. It measures 23.8×17.9 mm.

It, of course, must not be taken for granted that spotless blue is the normal colour for this beautiful bird's eggs. Nearly all the *Sibias* occasionally lay eggs which are quite or nearly immaculate, and it may well be that when more eggs are taken these will be found to be spotted or blotched.

Actinodura egertoni.

THE BAR-WING.

(321) *Actinodura egertoni egertoni* Gould.

THE NEPAL BAR-WING.

Actinodura egertoni egertoni, Fauna B. I., Birds, 2nd ed. vol. i, p. 303.

The present subspecies of Bar-wing is to be found from Nepal and Sikkim to the Daffa Hills, North of Assam. Stevens found it not uncommon in the Abor-Miri Hills but does not give the elevation at which he obtained it. In Sikkim it ranges from about 4,000 up to at least 8,000 feet, as Osmaston took its nest near Darjiling at this height.

It is a bird of the forest but not so much of the dense evergreen forest as of the lighter, more open parts, where the trees are mixed with scrub and light undergrowth. It also frequents and breeds in scrub-jungle and in secondary growth and Stevens remarks that altogether it is more like the true Laughing-Thrushes in habits and habitats than the *Sibias*.

Stevens took several nests in Eastern Nepal in the Mechi Valley and elsewhere up to 5,500 feet, while Masson sent me one nest with eggs and parents, obtained on Singile La Ridge, probably at a higher elevation even than Osmaston's nest, as Masson described it as having been taken near the top of the lower ridge, which would not be less than 9,000 feet.

All the nests I have seen agree well with the good description given by Hume:—

“The nests vary just in the same way as do those of *Trochalopteron nigrimentum*; some show only a sprig or two of moss about them, while others have a complete coating of green moss. They are cup-shaped, some deeper, some shallower; the chief material of the nest seems to be usually dry leaves. One before me is composed entirely of leaves of some *Polypodium*, on which the seed-spores are all developed; in another bamboo-leaves have been chiefly used; these are all held together in their places by black fibrous roots; occasionally towards the upper margin a few creeper-tendrils are intermingled. The whole cavity is lined more or less thickly, and the lip of the cup all round is usually finished off with these same black fibrous roots; and then outside all moss and selaginella are applied according to the taste of the bird and, probably, the situation, a few sprigs or a complete coating as the case may be.”

A nest taken by Gammie in an extensive evergreen forest measured 4·2 inches wide by 4 deep; internally 2·8 wide by 2·4 deep.

The site of the nest varies considerably. Gammie and Mandelli took nests in what they call “small trees” at heights varying from 4 to 20 feet from the ground. Masson took two from a similar position in dense evergreen forest, whilst Stevens seemed to have found all his placed in bushes and small trees in mixed scrub and light forest.

The breeding season is from the end of April, Gammie obtaining his first nest on the 27th of that month, to the end of June, when, on the 23rd, Stevens found his last nest.

The eggs number three or four, more often the former than the latter. The ground is a pale blue with a rather grey tint, fairly bright when first laid but getting rapidly duller when incubated or when blown and exposed to the light. The primary markings are of dark brown and are of many shapes; some are blotches, some are spots and specks, others again are loops and whorls and long fine lines wandering indefinitely over the surface of the whole egg, equally numerous everywhere except at the extreme smaller end of some of the eggs. In a few eggs the longest, finest lines are wanting and the various hieroglyphics are squat and heavy. Rarely the different markings are confined to the larger end, while in one egg the only markings are very large patches of dark brown. Most eggs have secondary or underlying blotches and spots of pale grey or grey-brown, though these are never conspicuous and are often hard to find.

The texture of the eggs is rather coarse, but the surface is smooth though glossless. In texture, as in normal coloration, the eggs of the *Actinodura* group of *Sibias* show the close connection of these birds with the true Laughing-Thrushes of the genus *Trochalopteron*. There are many eggs of the various races of *egertoni* which

are extraordinarily like small eggs of *Trochalopteron phoenicium*. In shape they are broad, blunt ovals.

The average of twenty-five eggs is 22.9×17.7 mm. : maxima 24.0×18.2 and 23.4×18.3 mm. ; minima 21.6×17.2 and 22.4×16.9 mm.

(322) *Actinodura egertoni khasiana* Godw.-Aust.

THE SHILLONG BAR-WING.

Actinodura egertoni khasiana, Fauna B. I., Birds, 2nd ed. vol. i, p. 304.

The Shillong Bar-wing is found only in the hills of Assam South of the Brahmapootra and in Manipur. It occurs in the Western Naga Hills but does not extend far along the Naga Ranges East and North, nor does it seem to be found in the Patkoi-Naga Ranges nor among the Trans-Dikku Hills.

Unlike the preceding bird, the present race, for breeding purposes, keeps almost entirely to humid evergreen forest between 3,000 and 6,000 or 7,000 feet. It is true that in Winter it may sometimes be found feeding on the ground in thin deciduous forest or even in scrub-jungle and deserted cultivation, but I have never found its nest outside forest. In the Khasia Hills it certainly breeds sometimes in Pine forests but, when it does so, it places its nest in a sapling or high bush in some ravine where other trees besides Pine are growing and where there is ample undergrowth. It never nests, so far as I am aware, in the Pine forests among the Pine-trees, where these trees kill all undergrowth except Daphne-bushes and bracken. In North Cachar most of my nests were taken from small saplings in very dense forest with fairly thick undergrowth, and the birds seemed to prefer steep hill-sides, ravines or broken rocky ground to any other. In the Khasia Hills they seldom bred except between 5,500 and 6,000 feet in the very thick evergreen forests above Shillong ; here they had all their favourite conditions, dense Oak and Rhododendron forest growing on steep boulder and rock-strewn hill-sides, with a wealth of ever wet and green undergrowth of all kinds. Every tree and rock was covered with orchids or with long streamers of the bright green moss they used for their nests, whilst bracken, grass and roots were all just at hand to furnish the rest of the materials necessary. A few birds bred at Cherrapoongi, at about 4,000 feet, in equally humid evergreen forest and on almost equally precipitous and broken hill-sides.

In spite, however, of its predilection for dense cover, the birds make little or no attempt to conceal their nests. Occasionally one finds a nest in a dense mass of creepers growing up a tree-trunk ; rarely it is placed in a thick bush, whilst more often it is built in among the foliage of a Rhododendron thick enough to conceal it really effectually. Still, the majority of nests will

be found, quite conspicuous, built in a branch of some small, rather bare sapling between 10 and 20 feet from the ground. In these all the concealment effected is that given by its moss-covered outer walls blending with the moss amongst which it is so often found.

The nests are rather large for the size of the bird, generally measuring about five inches across from edge to edge and very nearly as much in depth. Other nests may be nearly an inch less in both measurements but more exceed them. They are very well and strongly built, all the materials being strongly interlaced and the edges and outside neatly finished off. They seem invariably to be constructed in three distinct parts or layers. The main walls and base are built of leaves, very often chiefly bamboo-leaves, mixed with roots, grass-blades, a little dry moss and fibre from the inner bark of a tree. All these materials are tightly fastened together and more or less interlaced, but they are further strengthened and bound by long tendrils, weed-stems or long coarse roots. Outside the nest, but well fixed into the other materials, is an outer layer of green moss generally covering the whole of the bottom or sides but, sometimes, only partially doing so. The true lining is of coarse and fine roots, sometimes mixed with grass-stems, fern-rachides or rhizomorph and, in a few instances, made solely of this latter material.

They breed during May and June, a few birds commencing to lay in the last few days of April and a fair number still laying in early July.

Three is the normal full clutch of eggs but many birds lay two only, whilst others lay four.

The eggs, of course, are as a series indistinguishable from those of the preceding bird but, being so much more common in its own peculiar localities, and so many more eggs available for examination in consequence, there are a few clutches which call for further description.

One clutch of three has the ground-colour a very dull pale green, whilst the markings consists of smears and fine streaks of pale washed-out reddish with a few still paler ones of grey. Another set has the usual deeper blue ground but, in two eggs, there is a pale purple patch covering half the egg, over which there are one or two large blotches of purple-brown; one egg has a long line composed of fine intertwined lines, running unevenly nearly round the egg. Yet a third clutch is exceptionally bright blue with numerous small spots of deep brownish-black besides a few very fine lines of reddish.

In shape and texture the eggs of the Shillong bird are like those of the Nepal race, but I have one or two clutches which show quite a respectable gloss.

The shell is much harder and stouter than it is in the eggs of the *Leioptila* group.

One hundred eggs average 23.4×17.7 mm.: maxima 25.0×18.4 mm.; minima 21.7×17.4 and 22.0×17.0 mm.

(323) *Actinodura egertoni ripponi* Ogilvie-Grant.

THE CHIN HILLS BAR-WING.

Actinodura egertoni ripponi, Fauna B. I., Birds, 2nd ed. vol. i, p. 305.

This Bar-wing is not uncommon in the Chin Hills and North Kachin Hills over 5,000 feet, and both Harington and Grant obtained it in the Bhamo Hills near Sinlum Kaba at about 5,500 feet.

In the Bhamo Hills it apparently frequents light forest, small patches of heavier forest in between grass-lands and cultivation and, less often, bushes and saplings in more or less open country on the outskirts of the larger forests.

Harington, who first found this bird's nest, writes about it as follows :—

"I found a nest of this bird building and saw both birds, but returning when I expected to find eggs I found something had been before me. The nest was placed in a small sapling in rather a conspicuous position and, so far as I could see, was composed chiefly of moss. My Burman collector was, however, more fortunate in getting two nests at the end of April, with the parent birds, each containing two incubated eggs. Both were placed in bamboos and were deep cups having a mossy foundation and composed of bamboo leaves and roots, lined with fine grass, and measured 4"×5" outside and 2½"×2¼" (deep) inside.

"Eggs are very handsome, being a bright blue, spotted and marked with lines of brown, and have indistinct underlying purplish markings; they measure .9"×.66" (=22.4×16.6 mm.)."

Mr. F. Grant took several nests of this species within a five-mile radius of Sinlum Kaba, between 5,000 and 6,000 feet, of which he has kindly sent me three clutches. Grant also found two eggs to be the full clutch, and in one nest found a single egg partly incubated. Mackenzie, on the other hand, in the Chin Hills, where he found this Bar-wing breeding numerous above 5,000 feet, twice took three eggs from a nest.

He, Mackenzie, describes the nest as being very similar to those found by Harington and Grant :—"The nest is rather large, but is carefully made of roots, grass-stems etc.; these are surrounded by bamboo-leaves and moss, the whole carefully moulded. The lining is generally of fine moss-roots."

It is remarkable that Mackenzie found his nests in the Chin Hills built in low bushes. In one he gives the height at which it was from the ground as only 3' 8".

They are extraordinarily regular in their laying season; out of the whole series collected by Harington, Grant, Mackenzie and Hopwood, with one exception every clutch was taken between the 19th and the end of April, the one exception being taken on the 10th May.

The eggs differ in no way from those of the two preceding subspecies but the ten clutches given me by various collectors show very little variation, all being of the type described as normal for the species.

The average of thirty eggs—all that have been taken, I believe, so far—is 22.6×17.4 mm. : maxima 24.3×18.1 and 24.0×18.8 mm. ; minima 20.2×16.0 and 20.3×15.25 mm.

Sibia nipalensis.

THE HOARY BAR-WING.

(326) **Sibia nipalensis nipalensis** (Hodgs.).

THE NEPAL HOARY BAR-WING.

Ixops nipalensis nipalensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 307.

Sibia nipalensis nipalensis, ibid. vol. viii, p. 606.

This bird is one of a group about which very little is known, either in regard to its habitat or its nidification. This subspecies is confined to Nepal, Sikkim and Bhutan.

Stevens, who is the only collector other than Hodgson (if his are correct) who has taken the nest and eggs, says this Bar-wing is "more or less numerous at elevations between 7,000 and 10,200 feet on the outer ranges. It frequents the tops of the trees in parties at high elevations. 4,000' as its lowest limit, as recorded by Oates, is entirely erroneous for Sikkim."

Stevens gives it as occurring in *Winter* up to 10,000 feet on Kabo Pokhari and again at 10,160 feet on the 22nd March.

Hodgson records it as breeding from April to June in Sikkim and the Central region of Nepal, where the nest is said to be placed in holes or in crevices between rocks and stones. Its measurements are given as $3.62" \times 2"$ outside; $2.5" \times 1.37"$ for the egg-cavity. In construction the nest is described as being composed of fine twigs, grass and fibres, adorned with little pieces of lichen and lined with fine moss-roots. The eggs are said to be pinky-white but a copy of one of Hodgson's plates in the British Museum gives "a white egg with ferruginous spots."

None of these agree in the least with Stevens's nest and eggs but, unfortunately, he did not manage to kill either of the parent birds, so the matter is still in doubt. On the other hand, his description of the nests he took, three in number, are just such as we would expect a Bar-wing's to be, whilst the eggs are distinctly like the erythristic type of *Leioptila* egg. Again, in each case Stevens saw the birds and identified them, though he did not shoot them, and there were no other species of this group frequenting the forest.

The nests are neat, compact, cup-shaped nests well put together but small for the size of the bird, one sent to me measuring

3 by $1\frac{1}{4}$ inches only. They are made of fine grass-bents with lichen woven into the exterior and a lining of roots. In the nest sent to me there is also some moss among the materials of the outer wall. This particular nest is lined with coarse reddish-yellow roots. It was built on a small sapling in evergreen forest.

The two eggs are very pale pinky-white, marked at the larger end with bold blotches of reddish-brown and secondary blotches of ink-grey, forming fairly well-defined broad rings. Elsewhere there are a few scattered smaller blotches of both types. The eggs are moderately long ovals, the texture smooth, not very fine and quite glossless. They measure 27.1×18.7 and 25.2×18.8 mm. They and the other two nests, each containing two similar eggs, were taken in early June.

Hodgson's eggs, which measured roughly 21.6×14.0 mm., would be tiny for a bird the size of this Bar-wing.

(330) *Staphida castaneiceps* (Moore).

THE CHESTNUT-HEADED STAPHIDA.

Staphidia castaneiceps, Fauna B. I., Birds, 2nd ed. vol. i, p. 310.

The Chestnut-headed Staphida is found throughout the hill-ranges South of the Brahmapootra from Cachar to the Patkoi Hills, where Coltart and I found it breeding. According to Godwin-Austen it was seen by him in the Daffa Hills but Stevens did not get it in the Abor-Miri Hills adjoining them. It is common in Manipur and the Chin Hills, where Mackenzie and Hopwood found it "breeding in numbers in the cuttings of every forest road above 3,000 ft."

It is a common little breeding bird between 3,000 and 5,000 feet in the Khasia Hills and even more common in the North Cachar Hills wherever there are bridle tracks and paths through the forests which have cuttings or straight banks on one side of them. What this little Babbler did before man started making roads for him is a moot question but, nowadays, it practically never places its nest anywhere else. The quickness with which it finds out that roads are available is really interesting, and in North Cachar a suitable pathway, with a bank, made one year was almost certainly to be found out and occupied the succeeding year. Mackenzie tells me that his experience is exactly the same in the Chin Hills.

The description given by me in 'The Ibis,' 1895, is very full and I can add little to it, and what I said then about forty nests is equally true to-day about four hundred :—

"At least nine-tenths of the nests which I have taken of this little Staphida, and by this time the number must be over forty, have been found in holes in road-side cuttings. Nearly every

track in North Cachar has a straight bank of earth on one side from which the soil has been cut away, either to form the road or to lower the level, and in these banks the Chestnut-headed Staphida makes its nest. I have taken them from natural hollows, such as are caused by the falling out of a stone or by the decay of a large root, or from near the entrances of deserted rat-, Kingfisher- or Bee-eater-burrows. Sometimes they will be found just inside rather large holes, part of the material of the nest hanging out and proclaiming its presence to anyone who may approach within a few yards; at other times it is placed in some hole, the entrance to which is completely screened from view by overhanging ferns, moss or weeds. Once I have found the nest among the roots of a laurel-like shrub, and further protected by a large clod of earth which lay above it; another nest was taken from a hole in a mud wall and two were found in holes in the steep banks of ravines.

"The nest is almost invariably made entirely of the very softest shreds of grass and a material which looks like very silky jute, and is probably the inner bark of some tree; the lining is of this latter material only. In a few nests I have seen some dead leaves, a few dead brown plant-stems, fern-roots etc., used generally only for the purpose of filling up the gap between the nest itself and the entrance to, or sides of, the hole but, occasionally, for the groundwork of the nest itself, being particularly numerous in the one found in the roots of the laurel."

The nest is a very compact, well-built little structure with thick closely-woven walls. Outwardly there is practically no shape, this conforming to the hole in which it lies, but the receptacle for the eggs may be said to average some two inches in diameter by rather less than one in depth. I have taken nests measuring as much as 9.3 inches across the external diameter and others well under 2.5 inches, while some are not more than .5 inch deep in the centre of the depression.

The breeding season is from about the middle of April to the end of June, but about two-thirds of the eggs laid are deposited in May. In the Chin Hills Mackenzie found them breeding principally in the end of April and early May.

The number of eggs laid is four, occasionally three, and I have once seen five. The ground-colour of the eggs is almost white but, if the eggs are placed against really white eggs, such as those of Kingfishers, House-Martins etc., most are then seen to have a very faint greenish tinge and a few a very faint pink tinge. The markings consist of small blotches of vandyke brown or reddish-brown generally scattered fairly freely over the whole surface but more numerous at the larger end, where they sometimes form a very irregular cap or ring. If examined with a glass, the majority of eggs will be found to have a number of small secondary spots of livid grey or lavender but, in some, these are absent, and in no egg

at all pronounced. One clutch obtained by me in North Cachar is marked with light reddish and one taken by Mackenzie in the Chin Hills is truly erythristic, the ground being a pale pink and the markings light red. Two other very beautiful clutches have all the blotches gathered in a dense cap at the large end.

In shape the eggs are broad, obtuse ovals. The texture of the egg is fine and close and the surface very faintly glossy.

One hundred eggs average 16.6×13.5 mm. : maxima 18.4×14.0 and 18.2×14.2 mm. ; minima 15.0×13.0 and 15.5×12.2 mm.

The birds do not sit very close and it is exceptional to get within two or three yards of the nest. As a rule, as one walks along the narrow tracks through the forest, dignified by the name of roads, one sees, some ten yards away, a little bird slip out of the bank, flit along the road for a few yards and then disappear into the forest again. Nor do they return very quickly to the nest when disturbed.

Both birds take part in incubation, which, I think, takes eleven or twelve days. Eggs found and evidently absolutely fresh on the 4th June hatched on the 15th. Another set, with three eggs only, found on the 11th May, when inspected on the 25th had four young looking about 24 to 36 hours old.

Staphida striata.

THE BROWN-HEADED STAPHIDA.

(331) *Staphida striata striata* (Blyth).

THE BROWN-HEADED STAPHIDA.

Staphidia striata striata, Fauna B. I., Birds, 2nd ed. vol. i, p. 311.

This little Babbler is found from the Bhamo Hills, through Karenni and the mountains of Eastern Burma, to Tenasserim. Messrs. Robinson and Cook found it very common at Thandoung. The latter, writing of Tickell's Babbler, this bird's previous name, remarks :—"I did not realize how common it was until Mr. Justice Robinson and I had found about a dozen nests. Robinson set all doubt at rest by shooting a parent bird, and later I caught a bird in my landing-net on her nest.

"This species in Thandoung invariably chose for nesting place the banks of paths cut through the jungle, or in one instance I found a nest about four feet from the ground in a hole on the face of a deep road-cutting. The nests are usually cunningly concealed, though at times very conspicuous ; generally we found them partially concealed behind a clod or a tuft of moss or grass and built into any hole or shelf in the bank, but usually holes near the top of the bank were chosen, so that the overhanging moss, clods etc. partially concealed it.

"The nest is rather massive for such a small bird, being thickly walled with moss and rather loosely packed. The inside is a neat cup, lined with very fine grasses and thin black stalks, so very thin that they have the appearance of horse-hair, obtained, I fancy, from the smaller dried ferns.

"None of the seven nests I found between May 14th and 29th contained more than three eggs, and the eggs in all were fresh. One bird began laying on the 27th May."

In Tenasserim Hopwood found them breeding on Mount Nwalabo, at 4,000 feet elevation. Here also he notes:—"Nests always placed in small holes in the banks of road-side cuttings. Nests open and very exposed."

As noted above, Robinson and Cook took all their nests in April, but Hopwood and Mackenzie in Southern Burma found theirs in May. The earliest date I can find for any nest with eggs is the 5th April, a nest taken by Robinson at Thandoung, but I understand that he had taken other nests even earlier than this.

The normal clutch of eggs of this race is three and I have no records of a four and none of two showing that incubation had commenced.

The description already given for the eggs of the Chestnut-headed Staphida fully suffices for those of this bird and, in the small series in my collection, there are no clutches calling for remark.

Twenty eggs average 17.7×13.7 mm. : maxima 20.7×15.4 mm. (an egg measured by Mackenzie); minima 16.2×14.4 and 18.5×12.0 mm.

(332) *Staphida striata rufigenis* (Hume).

THE WHITE-BROWED STAPHIDA.

Staphidia striata rufigenis, Fauna B. I., Birds, 2nd ed. vol. i, p. 311.

The White-browed, or Hume's, Staphida is recorded from Sikkim to Eastern Assam both North and South of the Brahmapootra, but it does not occur South of this river except in the extreme East, in Lakhimpur. Harington records taking one bird in the Bhamo Hills, but this must have been *S. s. striata*.

This little bird, like others of the genus, does not seem to mind what kind of jungle it frequents so long as the cover is ample and there is a convenient road-side with a bank for it to breed in. Coltart and I found it fairly common in bamboo-jungle, deserted cultivation, secondary growth, mixed bamboo and scrub and in both light and extremely dense tropical forest, but we never found it in the breeding season at any distance from a road or path with a convenient bank. How far up the mountains it ascends we do not know but Stevens records it up to 5,000 feet in the Tista Valley, Sikkim. He did not find it in the plains in North Lakhimpur but came across it in the Sabansiri Gorge, just above

plains level, as well as in the Abor-Miri foot-hills. Around Margherita it was common in the foot-hills up to 2,000 feet and in the broken ground of the foot-hills and the plains immediately adjoining them. Wherever found it was resident and breeding.

The breeding habits seem to be just the same as those of the two preceding birds, and all the nests Coltart and I found were built in small holes in road-side and pathway cuttings, the only point at all noticeable being the fact that they very often selected holes quite close to the tops of high banks, sometimes six or seven feet above the road. The nests are made of the very finest and softest shreds of grass and some very fine fibrous material feeling almost like floss-silk. Sometimes this is of the same grey material as that used by the Chestnut-headed Staphida but, in other nests, we found an equally soft tan-coloured fibre used, evidently taken from the bark of some tree, though we never discovered what. The cavity round the nest was filled in with rather a more miscellaneous assortment than I have found made use of by *S. castaneiceps*. Small scraps of moss, both green and dry, were commonly used, as well as bits of leaves, roots, fibres of various sorts and broken bits of grass. Lining there was usually none, beyond the silky material of the nest itself, but in one nest I found that fungus rhizomorph had been used for this purpose, though really it was neither so soft and comfortable as the silky tan of which the body of the nest was constructed. Among the various kinds of holes taken possession of by this bird for its nest Coltart and I found the following:—Deserted nesting-holes of Bee-eaters and Kingfishers, a hole made by a cooli with his “dao” in passing and, most often, natural hollows from which a stone had fallen.

Concealment does seem a matter of importance with this species, and I do not remember seeing any nest proclaimed to the world at large by its material hanging conspicuously outside the hole. In most cases a weed or two, a few hanging tufts of grass, or similar screen protected the hole from the gaze of passers-by.

The birds sit much closer than the Chestnut-headed bird does, and twice when riding along a jungle-cutting I have had the birds fly from their nests, almost hitting me as they passed overhead.

This Staphida begins to breed in early April and continues throughout May; clutches taken in June and July are probably second layings of birds which have lost their first broods.

They lay three or four eggs, perhaps three only rather more often than four, which are quite typical of the genus and require no further description.

One hundred eggs average 16.6×13.3 mm. : maxima 18.0×13.2 and 17.2×14.1 mm. ; minima 14.7×12.4 mm.

Siva strigula.**THE STRIPE-THROATED SIVA.****(333) *Siva strigula strigula* Hodgs.*****THE NEPAL STRIPE-THROATED SIVA.**

Siva strigula strigula, Fauna B. I., Birds, 2nd ed. vol. i, p. 313 (part.).

According to the present distribution of the races of this Siva, the typical form is found only in Nepal and Sikkim. Meinertzhagen, however, includes one specimen from the Dafla Hills under the name *victoriæ*, though we should expect it to be the same as the Sikkim bird.

Meinertzhagen gives its Summer range (*i. e.*, breeding range) as up to 9,000 feet and its Winter range of elevation down to 2,800 feet. Stevens, however, never found it nearly as low as 3,000 feet in Winter, whereas in Summer he found it "plentifully distributed from 5,500'–10,200' on the Singile La Ridge above Darjiling." He also obtained it at 10,000', Maikola, E. Nepal.

In Hume's 'Nests and Eggs' there is only Hume's own summary of Hodgson's notes in regard to nests taken by him in Nepal and Sikkim, but in this there is nothing as to the elevation at which they were taken. He writes:—

"The nest of the Stripe-throated Siva is placed, according to Mr. Hodgson, in the slender fork of a tree at no great elevation from the ground. It is composed of moss and moss-roots, intermingled with dry bamboo-leaves, and woven into a broad compact cup-shaped nest. One such nest, taken on the 27th May, with three eggs in it, measured exteriorly 4.25 in diameter and 3 inches in height, with a cavity (thickly lined with cow's hair) about 2.5 in diameter and 2.25 in depth. The birds lay in May and June."

W. P. Masson obtained one nest and two eggs for me in the Singile La Ridge at what he estimates as 7,000 feet. Stevens took two nests and eggs, which he sent me, taken in May and June, each with two eggs, in Native Sikkim at "not under 8,000 ft." and, finally, Osmaston took one near Darjiling at about the same elevation.

The nests sent me agree fairly well with those described by Hodgson. They are small deep cups, neatly and compactly made of moss, dead leaves and a few bamboo-leaves, thickly lined with hair and, in one case, with a few hair-like roots or rachides. They measure approximately 4 inches across by about 3 or a little more in depth. Stevens's nests were both taken from "high bushes in dense evergreen forest" and Masson's from "the fork of a small sapling growing in evergreen forest."

* In the Bull. B. O. C. vol. xlvi, pp. 128–130, 1926, Meinertzhagen reviewed this race and separated the N.W. birds under the name *simlaensis*. His distributions are accepted here.

It appears to be a bird both of forest and scrub and to breed alike in both, but Osmaston, who also took a nest of this bird near Darjiling on the 4th June, 1904, obtained his in open forest. The nest, he observes, was just like those of *simlaensis* described more fully later on (see next subspecies).

The breeding season is May and June and the bird lays two or three eggs only, if we are to judge from the few nests taken up to the present. Like all *Siva* eggs, they are a deep blue or blue-green, rather darker, yet softer in tint than an English Thrush's egg or the well-known Indian eggs of the Streaked Laughing-Thrushes. They lose their colour quickly if left exposed to the light, or even when much incubated. They are very lightly spotted or freckled with black or with light red at the larger end, and the black-spotted eggs are very like many eggs of the smaller Rose-Finches and could probably not be distinguished from them.

Ten eggs average 20.4×15.3 mm.: maxima 21.2×16.0 mm.; minima 19.4×14.7 mm. Hodgson's eggs are described as measuring between 20.3 and 22.9 in length and between 15.2 and 16.5 mm. in breadth.

(333 a) *Siva strigula simlaensis* Meinertzhagen.

THE SIMLA STRIPE-THROATED SIVA.

Siva strigula strigula, Fauna B. I., Birds, 2nd ed. vol. i, p. 314 (part.).
Siva strigula simlaensis, ibid. vol. viii, p. 608.

Meinertzhagen gives the range of this new race as "Simla, Mussoorie, Naini Tal, etc.," to which must be added Garhwal, where Osmaston took several nests of this *Siva* in the Tons Valley, Garhwal Hills, giving the following account of them:—"This bird is fairly common in mixed forest at from 10,000 to 12,000 feet, where its melancholy call of three notes may be constantly heard in June. The nest and eggs are described by Hodgson but, apparently, by no one since, and as his description differs to some extent from what I have seen, I think it as well to add my description. I found three nests on the 3rd, 8th, and 24th June, containing two, three and three fresh eggs respectively. The nests were placed in shrubs or small trees at varying heights from about 4 feet to about 12 feet from the ground. They are very pretty, rather solid nests, composed of lichens (*Usnea*), birch bark, and then black fern-stalks, and are lined entirely with the latter.

"The eggs are perfect little miniatures of those of the English Song-Thrush (*Turdus musicus*), being blue, not pale blue, spotted rather sparingly with black or very dark reddish-brown specks."

In some notes to me Mr. Osmaston adds that the eggs were taken from nests built in open forest of Birch, Willow, Cherries, *Berberis*, *Rhododendron*, *Viburnum* and a few Silver Firs.

In 1917 Osmaston again obtained a nest of this species at 9,500 feet

in the Tons Valley. This nest was "in a dense thicket of dwarf willow, placed at a height of about 7 feet from the ground."

In the Patiala State Jones found it breeding at 8,500 feet. This nest was apparently not so beautiful as usual, for Jones says it was "a rather rough cup-shaped structure, composed of grass and moss with a lining of fibres and horse-hair; placed low down in shallow scrub, about 15" from the ground."

The twelve eggs referred to in the above nests, and now all in my collection, average 20.4×15.3 mm.: maxima 21.2×16.0 mm.; minima 19.4×14.7 mm.

The texture is, of course, just like that of the eggs of other Sivas, and the shape generally a broad oval.

(334) *Siva strigula castaneicauda* Hume.

THE BURMESE STRIPE-THROATED SIVA.

Siva strigula castaneicauda, Fauna B. I., Birds, 2nd ed. vol. i, p. 314.

The Burmese Siva is found in the higher mountain ranges of Burma from the Chin and Kachin Hills to Tenasserim. The Malay States bird has been separated as *malayana* but is very close to, if not identical with, the Tenasserim bird. It is apparently found between 4,000 and 7,000 feet, quite possibly much higher still, frequenting bamboo- and scrub-jungle.

There is nothing on record about its nidification but Mr. A. T. Kellow sent me one nest and an egg from near Simpang taken "in the high mountains a few days' journey North-East, in thin bamboo and scrub jungle." The nest is a deep, very compact and well put together cup made of leaves and moss with a few roots and lined with hair, probably that of a goat or serow, as it is very coarse and of a brindled yellow in colour.

The single egg it contained is of the usual Rose-Finch type and measures 18.4×15.6 mm.

Siva cyanuroptera.

THE BLUE-WINGED SIVA.

(335) *Siva cyanuroptera cyanuroptera* Hodgs.

THE NEPAL BLUE-WINGED SIVA.

Siva cyanuroptera cyanuroptera, Fauna B. I., Birds, 2nd ed. vol. i, p. 314.

The Blue-winged Siva has been recorded from Naini Tal, whence it extends through Nepal, Sikkim and the Outer Himalayas to Eastern Assam, both North and South of the Brahmapootra; Manipur, Looshai and Chittagong hill-tracts to the Chin Hills.

This beautiful little Babbler breeds between 3,000 and 8,000 feet, but principally over 5,000. This is another nest and egg described by Hodgson about which there is some doubt. The description is either very bad or refers to some other bird. Under the circumstances I give descriptions of nests and eggs taken by myself, in many cases the birds being trapped on them in horse-hair nooses. These are, however, multiplied many times by nests and eggs, all exactly similar, sent me by my own collectors since I left India.

All the nests I have seen have been built in either very thick evergreen forest of Rhododendron and Oak, with a few Khasia Pines mixed with the others, or in Pine forest where some stream or ravine, with water in it, attracted other vegetation and other trees. Once or twice only have I known the nest to be built in the sombre Pine forests of Shillong, where there are no other trees and the undergrowth consists of a few tangles of Raspberry and Blackberry canes and numerous Daphne-bushes growing every few yards almost with the precision and regularity of the Tea-bushes in a Tea-garden. Two nests of this Siva were built low down in these tangles, only a few inches off the ground, and extremely well hidden from view.

Undoubtedly their favourite haunt for breeding purposes is the bank of some stream where a few trees mix with the Pines or exclude them altogether, and where there is a miscellaneous thick undergrowth of bracken, bush, creepers and vines. Sometimes a bush is selected some four or five feet high as a site for the nest or, more rarely still, a small moss-covered sapling. In the latter case the nest is wedged into a fork or several twigs, and is made outwardly of the moss growing on the tree, so is very hard to see—in fact can hardly be detected until the bird is disturbed. Most nests, however, are built very low down in small bushes and matted canes, often within a foot of the ground and seldom over three feet. They are always most carefully hidden and, in addition, always assimilate so well with their surroundings that I know of few Babblers' nests which are harder to find. It is curious that in the Khasia Hills, where *Leiothrox lutea* and *Siva cyanuroptera* are almost equally common and which make rather similar nests, one can easily find twenty of the former to one of the latter, even when one is well acquainted with the birds and their habits. The nests themselves are not unlike those of the Red-billed Leiothrix, but are smaller, neater and much more compact. They are made of leaves, roots, bamboo-leaves and dried moss, very tightly put together and further compacted with tendrils and creeper-stems. Outside this there is generally a good deal of green moss, often the whole outer nest is completely covered with it but, sometimes, there is only a little and, occasionally, none at all. This is especially the case when the nest is built in brambles in Pine forest. The lining is sometimes of buffalo-hair but, generally I think, of the finest black fibres or roots. One nest taken in the Khasia Hills was lined entirely with very thin red roots.

Whymper, who found one nest near Naini-Tal at about 5,000 feet, on 19th June, describes the nest as being very similar to those found in the Khasia Hills.

Nearly all my nests were taken in June but I have one taken as early as the 16th May and another taken on the 19th of that month.

The number of eggs laid is two to four, the first seldom, though I have known of two eggs being incubated and of two young in a nest.

The eggs are the rather deep Thrush-egg blue of all the Sivas, whilst the markings consist of a few small black spots and specks at the larger end, generally absent elsewhere. Sometimes the black spots are replaced by tiny reddish specks and freckles, and I have one clutch in which these form a thin indefinite ring at the larger end. Mandelli's eggs agree fairly well with this last type but are a different blue in the ground-colour.

In shape most eggs are a rather broad oval, somewhat pointed at the smaller end. A good many eggs are, however, a true oval, whilst a few are rather narrow. The texture is, as usual, fine and close but glossless.

Twenty-four eggs average 18.4×14.1 mm. : maxima 20.0×15.0 and 19.6×15.2 mm. ; minima 17.0×13.9 and 18.3×13.2 mm.

Yuhina gularis.

THE STRIPE-THROATED YUHINA.

(339) Yuhina gularis gularis Hodg.

THE NEPAL STRIPE-THROATED YUHINA.

Yuhina gularis gularis, Fauna B. I., Birds, 2nd ed. vol. i, p. 317.

The distribution of this Babbler stretches from Nepal to Eastern Assam, North of the Brahmapootra. It is probably a breeder at high elevations, but there is very little authentic on record about its nidification. Stevens, referring to Sikkim, writes :—“ 3,800' (Shaw), a remarkable record in altitude, up to 10,000 feet on the Singile La Ridge, numerous at Kalo Pokhari at 10,000 feet in March.” Its normal lowest elevation is probably round about 6,000 feet.

It is a bird of forests ; Jerdon says of Pine forests, but Masson also found it breeding in dense evergreen forests.

Hume's summary of Hodgson's notes on its breeding is as follows :—“ The Stripe-throated Yuhina breeds from April to July, building a large massive nest of moss, lined with moss-roots, and wedged into a fork of a branch or between ledges of rocks, more or less globular in shape, and with a circular aperture near the top on one side. A nest taken on the 19th July, near Darjiling, was quite egg-shaped, the long diameter being perpendicular to the

ground and measured 6 inches in height and 4 inches in breadth, the aperture, 2 inches in diameter, being well above the middle of the nest; the cavity was lined with fine moss-roots. The eggs are figured as rather elongated ovals, 0.8×0.56 , with a pale buffy or café-au-lait ground-colour, thickly spotted with red or brownish-red, the markings forming a confluent zone about the large end."

The above may or may not be correct, but eggs and nest are utterly unlike one sent me by Masson, taken above Darjiling at about 9,000 feet on the 4th May. This nest is a cradle of roots, well interlaced and put together but looking very fragile. The lining is of finer roots and rachides. The nest had been attached to the pendent roots of plants sticking through an overhanging bank. The bird, unfortunately, was shot at and missed. The four eggs the nest contained are rather like those of *Yuhina nigri-mentum*, which are known beyond all doubt, but bear no resemblance whatsoever to those described by Hodgson. The ground-colour is a dingy grey-green, and they are speckled freely with dark reddish-brown, the markings coalescing to form broad rings or caps at the extreme larger end. The texture is brittle and glossless and the eggs measure between 17.0×12.3 and 17.5×12.8 mm.

Yuhina diademata.

THE BROWN-CHINNED YUHINA.

(341) Yuhina diademata ampelina Rippon*.

THE BHAMO BROWN-CHINNED YUHINA.

Yuhina diademata ampelina, Fauna B. I., Birds, 2nd ed. vol. i, p. 318.

Yuhina diademata, ibid. vol. viii, p. 608.

Now that it is accepted that *ampelina* is a good subspecies, its area must be restricted to Yunnan, the Kachin Hills and Bhamo Hills, breeding from 5,500 feet at Sinlum Kaba probably up to 13,000, Lichiang, where it was obtained by Forrest.

Harington was the first collector to take the nest but, unfortunately, only gives a very brief description of its nidification:—"I found several nests during my stay in the hills [Bhamo Hills], the first on the 16th April. All the nests I found were placed in bramble bushes within three to four feet of the ground, and were

* The status of this bird has undergone rapid and frequent changes. In 1923 Rothschild, in 'Novitates Zoologicae,' came to the conclusion that *ampelina* could not possibly be distinguished from the typical form, basing his assumption on the examination of a series of skins considerably greater than that originally available, though all, apparently, in worn plumage. Later Forrest obtained a further fine lot of skins in fresh plumage and Rothschild then decided that, when fresh and in perfect condition, the two forms were quite easily separable (see Nov. Zool. vol. xxxiii, p. 277, 1926).

very flimsy affairs, being quite transparent, and were made entirely of black roots. Two seemed to be the usual complement of eggs; I only found one nest with three."

Later, other nests were taken by Pershouse and Grant in the same hills near Sinlum Kaba, and the former, in sending me nests and eggs, gives a rather fuller description of them than Harington does. He writes:—"Nests cup-shaped, made of grass, rootlets, and tendrils with a few pieces of bracken; the outside is more or less covered with moss and spider-webs whilst the lining is of fern-stems and coarse black hair. One nest was placed between several dead upright brambles, about two feet from the ground, among long coarse grass, brambles, bracken etc. The nest measured about $4'' \times 2\frac{1}{4}''$ outwardly and $3'' \times 1\frac{1}{2}''$ inwardly." In a letter he adds:—"The coarse black hair appears to be maidenhair fern rachæ, whereas the rest of the nest is a dark reddish-brown, contrasting strongly."

Other nests taken all agree very closely with those described above.

This species seems to breed from early April to the end of May. Grant took a nest with a complete clutch of eggs on the 10th of April, whilst Harington took one with two fresh eggs on the 30th May. Both these nests were taken at Sinlum Kaba, 5,500 feet altitude.

The eggs are, as Harington says, very like small eggs of the Magpie-Robin, without any gloss. The ground is a soft grey-green, blotched freely all over with fairly large-sized markings of brown. These are always more numerous at the larger end, but in very few eggs form definite caps. In some eggs the marks are smaller, more spots than blotches, and in these they are generally more numerous. In texture the eggs are fine and soft but have no gloss, in fact the texture is similar to that of the eggs of *Fulvetta*. In shape they are rather long, narrow ovals but blunt, not compressed at the smaller end.

Twenty-two eggs average 20.5×14.9 mm. : maxima 21.8×15.0 and 19.6×15.7 mm. ; minima 19.6×15.7 and 20.0×14.2 mm.

Yuhina nigrimentum.

THE BLACK-CHINNED YUHINA.

(343) Yuhina nigrimentum nigrimentum (Hodgs.).

THE NEPAL BLACK-CHINNED YUHINA.

Yuhina nigrimentum nigrimentum, Fauna B. I., Birds, 2nd ed. vol. i, p. 320.

This Black-chinned Yuhina occurs throughout the Outer and Lower Himalayas from Nepal to Eastern Assam, both North and South of the Brahmapootra and as far as Manipur, the Chin Hills and Arrakan Yomas. In Assam we only found it from 3,500

to 6,000 feet in the ranges to the South, while in the Miri-Abor Hills Stevens obtained it at 4,000 feet in March. In Sikkim, however, he says "it is strictly confined to the hot, moist valleys, and thus has a tropical status." On the Tista it was obtained at 2,300 feet and 1,200 in Winter, though it never, I believe, breeds so low.

Gammie's and Jerdon's supposed nests and eggs of this bird were *not* correctly identified.

Absolutely authentic nests and eggs have been taken by myself in 1894 and 1895 in North Cachar, and again by Whympers in 1909 at Naini Tal.

The nests were all of the same description, only differing in the positions in which they were built. The first nest I obtained at Guilang on the 29th July, at an elevation of about 4,000 feet. I had been out birds-nesting and, on my return to camp, passed a dead tree by the road-side covered with most luxuriant lichen. To get some of this I sent a Naga up the tree and, in climbing it, he disturbed a bird; looking under the bough in the place whence the bird flew, he found a nest and four eggs. Setting some nooses on the nest he came down, and it was hardly a quarter of an hour before the bird returned and was trapped. The bough of the tree, five or six feet from the ground, was covered with long pendent lichen, growing very thick and close, and it was between two long pieces of this, which hung either side of the branch, that the nest was suspended. In shape it was a very massive, compact little cradle, the two ends prolonged and intertwined with the lichen from which it hung. Outwardly, the longest way it measured 3·4 inches and across the narrowest way 2·4, whilst the depth in the centre was 1·85. The egg-cavity measured 1·75 inch across by nearly 1 deep. The material consisted almost entirely of moss-roots, only a very few small scraps of dead moss being also used, whilst the lining was composed of the finest stems of grasses and one flowering-grass end. Strength is given to the nest by the use of cobwebs, these being most numerous at the ends next the supporting lichen.

Another nest was taken a few days later from an exactly similar position on a tree not twenty yards from the first.

Later I took nests both from trees, low down, and from under overhanging banks, where they were fastened to the roots of the plants and bushes which had forced their way through or from which the earth had fallen away. The nests themselves were quite like the first one in all respects.

Whympers writes of the nests taken by him in Naini Tal:—
"The first nest I took of this bird was underneath a hanging bank from which the earth had fallen away, exposing the roots of the bushes above, and to these roots it was slung. It was made of moss with a little cobweb externally and lined with fine black rootlets of ferns. I never saw a nest in any other position except once among

the rootlets of a fern-covered fallen tree. An extraordinary number of these nests are destroyed, I believe, by the Green Magpie; some years we would leave four or five nests, only to find that they had been destroyed later on."

The eggs are of two types; the most common in North Cachar had the ground a very pale but rather bright sea-green, rather profusely spotted all over with very pale brown blotches, mostly small and irregular, with a few specks and freckles intermixed with them. At the larger end the spots form fairly well-defined broad rings, with a few deeper, darker spots of vandyke-brown. The other type has the ground-colour a pale clay or clay-green, with the spots numerous but smaller.

In shape the eggs are broad ovals, distinctly compressed at the smaller end but quite blunt. The texture is smooth and fine but glossless, and the shell is stout for so tiny an egg.

Twelve eggs average 16.2×12.3 mm.: maxima 17.0×12.5 and 16.1×12.6 mm.; minima 15.5×11.7 mm.

All my nests were taken in July, but Whympers took nests both in April and July and thinks that they have two broods. This may be the case also in North Cachar, as I never worked this particular part of the country in early April.

(344) *Ixulus occipitalis* (Blyth).

THE CHESTNUT-HEADED IXULUS.

Ixulus occipitalis, Fauna B. I., Birds, 2nd ed. vol. i, p. 321.

The Chestnut-headed *Ixulus* is found as far West as Garhwal and thence Eastwards on the Lower Himalayas through Nepal, Sikkim, and Bhutan to the extreme East of North and South Assam, Manipur and the Chittagong hills-tracts.

Gammie found it breeding at Rungbee, Sikkim, at about 3,000 feet; Stevens never came across it in Sikkim but found it not uncommon in the Abor-Miri Hills and even in the plains adjacent to the hills in Winter. In South Assam it was a common bird in the humid evergreen forests between 3,000 and 5,000 feet but, although doubtless it often bred much higher, I never found its nest under 2,500 feet. Like so many other birds which breed in deep forest, they prefer little open, or comparatively open, spaces in which the greater trees thin out and let the light in. Mountain streams, perhaps so small that in places the foliage almost meets overhead, jungle paths etc. are favourite haunts, and I have taken several nests within a yard or two of village tracks. The site selected for the nest varies a good deal, and with the site the nest differs also. Some nests are built a few feet up in forest trees overhung with luxurious green moss, and in these the nest seems generally to be domed or nearly so, made of the

moss with which the tree is covered and so neatly tucked away among it that it is almost impossible to say what is nest and what is living moss. The lining in this and in nearly every other case is of fine fern- and moss-roots only.

Another place often selected is a mossy bank, overgrown with bracken, ferns, caladiums and other plants, in among which the nest is snuggled down in some hollow, a deep cup of moss with a few roots and odd dead leaves worked in, well protected overhead by some thick bunch of bracken and looking just like the mossy, leaf-strewn bank all round it. Sometimes it is built in among boulders and rocks or, occasionally, against the face of a moss- or fern-covered rock. In these positions the nest may be cup-shaped if well protected above but otherwise it is domed or semi-domed. The materials are generally moss mixed to a less or greater degree with dead leaves, roots and bits of bracken and, occasionally, almost entirely of these materials.

Some nests are, however, placed low down in bushes or tangles of wild raspberries, and such nests almost invariably are cup-shaped and made more of leaves, bracken and roots, bound together with tendrils and long creeper-stems. Sometimes moss is worked into the outside, but seldom so as to cover the whole of the nests, as in the other types.

The domed nests average roughly, in external diameter, about 4 inches and in height about 5; some are, however, decidedly smaller, and I have one measuring only $3\frac{1}{2}$ by 4 inches. The cup-shaped nests may be as much as $3\frac{1}{2}$ inches from lip to lip, and roughly about half as much in depth.

Both birds assist in building the nest and both assist in incubation. They are shy little birds, but a pair were once found by me building a nest in a road-side tree, in among the moss growing all over the trunk. It was easy to hide and watch the birds at their work and, by the second day, they became so used to my sitting within about five yards of them that they went on with their work without paying any attention to me.

Both birds bustled in and out of the moss, tugging away at the pieces which they fancied but, in at least three out of four times, rejecting it again. They disturbed no moss within a little distance of the nest but seemed to collect most from the opposite side of the trunk. The male evidently took part in the actual building for, though it was almost impossible to see exactly what he did, he used to disappear with his material and come out again without it. The nest was very quickly built; half finished only when first discovered, it was completed, lined and roofed-in in the next 48 hours and the first egg deposited the next day, and on my return seventeen days later contained three lusty young birds.

The breeding season is throughout May and June but I have taken eggs both in April and July, though I do not think they are normally double brooded.

The number of eggs laid is four, occasionally only three, never, so far as I know, five, though the Nagas, who are wonderfully reliable field-naturalists, say that this number is sometimes laid.

Looking at a series of eggs of this bird one gets the impression that they are a glorified lot of Swallows' eggs, very heavily and handsomely marked. The ground is a pure white, in a few cases only faintly tinged with brown. The markings consist of primary blotches of brown varying from slightly reddish-brown to a deep umber-brown. These blotches are sometimes numerous over the whole surface though, nearly always, thickly scattered at the big end. In some they are decidedly more numerous at this end and in a few they are thick here and sparse elsewhere. Normally there are no secondary marks, but a close examination of a few eggs may show pale brown marks underlying the top layer of calcium. One abnormal clutch taken by myself has the marking confined to a deep brown cap at the extreme larger end, whilst in a second clutch one egg has large smears and blotches of brown, one is marked in the usual manner and two are intermediate.

In shape the eggs are long ovals, compressed towards the smaller ends but never very pointed. The texture is fine and smooth but glossless, though a few of the least-marked eggs have a smooth sheen on their surface.

Sixty eggs average 19.3×14.2 mm.: maxima 21.3×14.0 and 20.1×15.0 mm.; minima 17.3×14.0 mm.

Ixulus flavicollis.

THE YELLOW-NAPED IXULUS.

(345) *Ixulus flavicollis flavicollis* Hodgs.

THE NEPAL YELLOW-NAPED IXULUS.

Ixulus flavicollis flavicollis, Fauna B. I., Birds, 2nd ed. vol. i, p. 322 (part.).

Ticehurst having separated the pale North-Western race, *I. f. albicollis* (Bull. B.O.C. vol. xlv, p. 71, 1924), the range of the typical form is restricted to Nepal East to Bhutan. It breeds in the Outer Himalayas from 5,000 feet upwards; Blanford obtained it at Lachen, 9,000 feet, in June and Stevens records it "from the foot of the Hills up to 7,800 feet," but its occurrence at the lower elevations must surely refer to Winter months only.

Like the preceding species of *Ixulus*, this bird makes more than one type of nest in situations varying greatly in character. The one and only nest found by Gammie was cup-shaped, "composed of moss and fine root-fibres and thickly lined with the latter, and was suspended at a height of about six feet in the natural moss hanging from a horizontal branch of a small tree, in which it was entirely enveloped. A more beautiful and more completely invisible nest it is impossible to conceive."

Then we have Hodgson's nests, taken in Central Nepal and the vicinity of Darjiling, where, according to Hodgson, "it builds on the ground in tufts of grass, constructing its nest of moss and moss-roots, sometimes open and cup-like and sometimes globular, and lining it with sheep's wool."

One of Hodgson's paintings figures a nest suspended from a branch, and Osmaston obtained a nest in exactly the same position, hanging among the moss of a branch about 15 feet from the ground. Other nests taken by W. P. Masson were also pendent from mossy branches or trunks, and these were all domed moss-nests lined with moss-roots.

Hume also says that "the bird very commonly suspends its nest to one or two twigs, making it a complete cylinder or egg in shape, with the entrance at one side, but always using moss, in some cases fine, in some coarse, according to the nature of the moss growing where the nest is placed, as the sole material, and lining the cavity thickly with fine black moss and fern-roots."

Jerdon's nests referred to in Hume's 'Nests and Eggs' we may definitely ignore as wrongly identified.

So far nests with eggs have only been taken during May and June. The full clutch of eggs is four, though three only seems to be more often laid by this species than by the preceding, and Masson and Osmaston both took clutches of this number which were apparently complete. I do not think it would be possible to distinguish between the eggs of the Chestnut-headed *Ixulus* and the Yellow-naped *Ixulus* except that the latter average bigger and are, perhaps, even longer in proportion to their breadth, while some are more pointed. Hume's eggs covered all the varieties already described under *I. occipitalis* but, curiously enough, the only two clutches in my own collection seem to be the two extremes of variation. A clutch of three taken by Osmaston on the 14th May is white of the purest in ground; one egg is almost immaculate, one is lightly freckled with pale red, and the third is rather more definitely marked with the same. The other clutch, taken by Masson, has a pale cream or buff ground with dense rings of deep red-brown at the larger end and other freckles of reddish-brown elsewhere, least numerous at the small end.

Including Hume's eggs, the average of twenty-eight eggs is 19.8×14.2 mm.: maxima 21.1×14.2 and 20.9×14.8 mm.; minima 19.3×13.9 and 19.7×13.7 mm.

(346) *Ixulus flavicollis baileyi* Stuart Baker.

THE MISHMI YELLOW-NAPED IXULUS.

Ixulus flavicollis baileyi, Fauna B. I., Birds, 2nd ed. vol. i, p. 323.

This form of *Ixulus* was discovered in the Mishmi Hills, while Stevens found it common on the North side of the watershed in the North of North Lakhimpur but also, though in rather

smaller numbers extending into the foot-hills South of the watershed. It occurs in Margherita but is rare. In the North Chin Hills Mackenzie also came across an *Ixulus* which was probably of this race but the extreme Southern Chin Hills bird is definitely the same as the South Assam bird; from Mt. Victoria, however, Harington considered the specimens seen by him to be nearer the present race. The only note on this bird's nidification is that given by Mackenzie (Journ. Bomb. Nat. Hist. Soc. vol. xxv, p. 81, 1917):—

"Nest (1) on the ground in the roots of a tree; (2) a cradle-like arrangement hung between two twigs. The one on the ground was a well made cup of moss, lined with moss-roots. I found a clutch of two eggs hard set on April 29th. Six eggs average $.75 \times .50$ ", length varying from $.73$ " to $.77$ " and breadth from $.55$ " to $.58$ ".

The above description is given for what it is worth but, until further material is obtained from the Chin Hills for examination, no certain decision as to the race to be found there can be given.

(347) *Ixulus flavicollis harterti* Harington.

THE BHAMO CHESTNUT-NAPED IXULUS.

Ixulus flavicollis harterti, Fauna B. I., Birds, 2nd ed. vol. i, p. 323.

This form of *Ixulus* has the widest range of all the subspecies of *flavicollis*. It is extremely common in the hills of Assam South of the Brahmapootra, and extends through Manipur and the extreme South Chin Hills into the Bhamo Hills and Trans-Salwin Shan States.

This is a bird of evergreen forest all over its range, breeding between 3,000 and 8,000 feet during May and June, some birds laying as late as the end of July, others as early as the 10th April.

Nests and sites differ just as greatly with this race of *Ixulus* as they do with those already described. The following situations in which I have personally taken nests give a good idea of the variety of sites chosen:—

(1) A semi-domed moss-nest built of, and in among, long moss hanging from a dead Oak-stump in evergreen forest and about four feet from the ground. An interesting feature of this nest was the fact that, though the moss all round was literally dripping wet, the inside of the nest was absolutely dry. 5,500 feet.

(2) Cup-shaped, placed on the ground of a steep bank in evergreen forest. All moss and placed between small boulders and well screened by *Begonia* plants. 4,800 feet.

(3) Cup-shaped nest, entirely made of moss and built pendent between twigs of a straggling bush but partly hidden by long streamers of green moss which hung from all the branches. 4,000 feet.

(4) Fully domed, made of moss and practically buried in deep moss growing on a steep, boulder-strewn bank in humid Rhododendron forest. 6,000 feet.

(5) Fully domed and placed under Daphne-bush on the ground in a ravine in Pine forest. Nests of this species in Pine forests are rare. 5,000 feet.

(6) Cradle-shaped, made of moss and hanging under a bough of a tree about six feet from the ground, pendent from the long hanging moss, which grew completely over it. 3,500 feet.

I think the nest is always domed unless it is well protected above from rain and, even then, it is often domed or semi-domed. I have taken no nest more than 15 feet from the ground, and anything over six feet seems to be exceptional.

Both birds take part in building the nest, though to what extent the male assists I am not sure. Both sexes also take part in incubation, for we have trapped both on the nest, though more males than females.

Incubation takes, I believe, exactly thirteen days, rarely fourteen.

In Assam the number of eggs laid is usually four, sometimes three only, while Harington found four eggs in a nest at Sinlum Kaba. The Chin Hills birds, however, of whatever race they may be, seem to lay two only, all the nests taken by Hopwood and Mackenzie holding either two eggs or young.

No description in detail is required for the eggs, which are just like all other *Ixulus* eggs; I have, however, taken one variety which I have not seen represented among the others. This has a very pale pink ground and is blotched with a pretty pale pink-red, heavily at the larger end, less so elsewhere.

Sixty eggs average 19.3×14.2 mm.: maxima 21.3×14.8 and 19.4×15.0 mm.; minima 18.5×14.0 and 18.6×13.8 mm.

I have seen two pigmy eggs of this species in the same nest, but the birds had been watched by me for some time and had become so friendly that I left them in peace.

***Erpornis xantholeuca*.**

THE WHITE-BELLIED HERPORNIS.

(350) *Erpornis xantholeuca xantholeuca* Hodgs.

THE NEPAL WHITE-BELLIED HERPORNIS.

Erpornis xantholeuca xantholeuca, Fauna B. I., Birds, 2nd ed. vol. i, p. 325.

This curious little Babbler breeds throughout the Outer Himalayas from Nepal to Eastern Assam and Manipur. It is found throughout the hills of Burma, Siam and the Malay Peninsula and, on the material available, I have not felt justified in accepting any division

of races within this area. It is resident and doubtless breeds wherever found. In Assam it is to be seen from the foot-hills up to some 3,000 feet. In the breeding season it seems to keep much to moist, deep evergreen forest in the lower valleys between 1,000 and 2,000 feet. Oates speaks of it being found up to 5,000 feet, but Stevens never obtained it over 3,300 in Sikkim, an elevation which agrees better with its distribution in Assam. Only once have I known it over 3,800 feet, a nest taken at Cherrapoongi, in the Khasia Hills, having been found at an elevation of nearly 4,000 feet.

Its favourite resorts are the banks of hill-streams or small glades and open spaces near the edge of forest, and it does not breed far in the interior of these unless by village tracks or streams. I have also sometimes seen this bird in the much drier grass country to the North-East of the Cachar Hills. This country consists of rolling grass-covered hills, the bottoms of the dips between the hills filled with rather dense forest with ample undergrowth, and frequently with small streams running through them.

The few nests I have taken were attached to small hanging or horizontal twigs of bamboo-clumps or the twigs of a bush, always in evergreen forest and always by a stream or small, more or less open and sun-lit space. As a rule they are only two to four feet from the ground, but one attached to a branch of a small sapling may have been six feet up.

The nests are little cradles built into, but pendent between, small branches or horizontal twigs, never in between upright ones. They are made of fine fibres, moss- and fern-roots, well interlaced, but not sufficient in number to make bulky nests, and they look more fragile than they are. The lining is of very fine rachides, all black in colour, so that the nests are very dingy-looking little affairs.

Hopwood took one nest of this species at Tounghoo, apparently very similar to those taken by myself. In *epistola* he writes:—“It was taken in the Pegu Yoma forests in heavy jungle which varied from moist moderate to dense evergreen, the latter along the borders of the streams. The nest was just at the upper edge of the evergreen forest and was built in a small bamboo about two or three years old. There was a pretty thick growth of young bamboos and the twig selected for the nest was bent over like this [sketch of a thin horizontal twig], about three feet from the ground.”

This nest was taken on the 24th of March but all my Assam eggs were taken in the end of April and in May.

The number of eggs laid seems to be two or three only, generally the former. The ground is china-white and they are thinly marked with freckles or small blotches of pale pinkish-red. These are usually least scanty at the larger end where, in a few eggs, they form an ill-defined ring.

In shape they are rather long, obtuse ovals. The surface is distinctly glossy and the texture fine, close and hard.

Twenty eggs average 16.7×12.7 mm. : maxima 18.8×14.0 mm. ; minima 15.2×12.0 mm.

The only two birds actually trapped on their nests were both females.

Subfamily LEIOTRICHINÆ.

Leiothrix lutea.

THE RED-BILLED LEIOTHRIX.

(351) *Leiothrix lutea callipyga* (Hodgs.).

THE INDIAN RED-BILLED LEIOTHRIX.

Leiothrix lutea callipyga, Fauna B. I., Birds, 2nd ed. vol. i, p. 328.

The Red-billed *Leiothrix* breeds between 4,000 and 8,000 feet and, less commonly, down to 3,000 feet throughout the Himalayas from Simla to Eastern Assam, North and South of the Brahmaputra, the Chin Hills and Arrakan.

It is extremely common in the Khasia Hills over 4,000 feet but, in comparison, rare in the adjoining North Cachar Hills, possibly because the latter have no Pine forests at suitable elevations. At the same time the *Leiothrix* does not seem to mind much what kind of country it breeds in. I have taken their nests from Pine forests, humid evergreen forest, thin and rather scattered Oak forest, scrub and secondary growth and even from bamboo- and tree-jungle mixed. In Sikkim Gammie found that they bred in all kinds of cover but preferred dense scrub. Possibly in Assam they prefer rather thin, open Pine forest with plenty of undergrowth, and I have taken nests from deep forest where the Pines exclude light and have no undergrowth.

A very favourite and very typical breeding ground for this bird was a ravine, the upper end of which started close to my house in Shillong. The ravine ran through rather open Pine forest growing on a very steep hill on one side and on a gently sloping hill on the other. This ravine was about twenty yards across but, here and there, opened out to more than twice this width ; the sides were steep and rocky and, in some places, great masses of moss- and fern-covered rocks rose to a height of fifteen feet or more. Pines in the ravine itself were few and stunted but, all along it, grew *Rhododendron*-trees, stunted Oaks and a wealth of undergrowth, consisting of Jasmine, brambles of all kinds, bracken in patches and ferns and moss everywhere. Here every year two or three pairs of birds bred, selecting low bushes or tangles of brambles and Raspberry vines in which to place their nests. All over the Khasia Hills similar ravines abound in the Pine-woods, and few of these would fail to yield one or more nests if worked in May and June.

They do not keep entirely to such places even in the Khasia Hills, for I have taken nests in that district in abandoned strips of cultivation, in the dampest and densest of *Rhododendron* and Oak forest, from the evergreen forests at 3,000 to 4,000 feet composed of miscellaneous trees of great size, from open scrub-jungle, and even, though but very rarely, from bamboo-jungle.

The nest is nearly always placed rather low down, sometimes in matted brambles within a few inches of the ground, sometimes in low bushes two to four feet up and, at other times, in high bushes or in small saplings up to six or eight feet from the ground. It may be placed in a horizontal or vertical fork or in between several supports but, most often, between two or three horizontal twigs or vines. It is a well-made substantial cup, but not a very neat one and, often, a decidedly bulky one in proportion to the size of the bird. The materials of which it is composed are many and various—dead leaves, bamboo-leaves, scraps of moss, dry or green, lichen, roots and a few small pliant twigs. Generally these miscellaneous articles are first wound round with two or three bamboo-leaves quite loosely and then bound more tightly and carefully with tendrils, long roots and creeper-stems, these being also wound thoroughly round the supporting twigs as well. The lining is almost as varied as the walls and base. Most often roots are used, but these may be fine roots of ferns and moss, coarse roots of bamboo and bracken, black rhizomorph or the bright red wiry tendrils of *Convolvuli*. Sometimes hair, gaur or buffalo, may be used, but the Sikkim birds appear to employ hair for the lining of their nests more than the Assam birds do.

Concealment does not seem to be much sought for. Some, from the denseness of the surrounding leaves or vines, may not be too obvious, but others will be placed in quite conspicuous outer positions in a bush when, to a human being's ideas, there seems to be an infinitely better one a few inches inside the same bush.

The breeding season is a very long one ; in and round Shillong I have taken them from the 1st of April up to the 4th of September, whilst Gammie took a nest with three eggs at Rishap, near Darjiling, on the 17th October. May and June are, however, the two months in which three out of every four nests with eggs will be taken.

The eggs number three or four, probably three more often than four, whilst two only are often incubated. On the other hand I have two or three times taken as many as five eggs in a clutch.

The eggs are very beautiful. The ground-colour varies from pure white, which is rare, to a pale blue, in a few cases almost a Thrush-egg blue. The markings vary somewhat. In most they consist of rather large bold blotches of dark red-brown or umber-brown sparingly dotted about the larger end and smaller and still more scanty elsewhere. In other eggs the markings are more

spots than blotches, and often form a ring round the bigger end. In a few eggs there are, in addition to the blotches, pale smudges with darker edges, a coarse line or two, or spot almost black. Other eggs, again, have the marks much paler, but it is the exception for them to be so. The secondary markings are few in number, sometimes practically absent, consisting of a few rather dark lavender or blue-grey spots. In shape the eggs are broad ovals, decidedly smaller at the small end but seldom at all pointed. The texture is very hard and fine and the shell strong with a bright gloss.

Two hundred eggs average 21.9×16.1 mm.: maxima 23.2×17.0 and 23.0×17.1 mm.; minima 18.9×15.2 and 21.4×15.0 mm.

Both birds take part in incubation but the female is probably the one which sits during most of the day, as it is nearly always the female which is trapped on the nest. The male has, however, been noosed more than once. The female seems to do most of the nest-building, the male bringing her the material, which she refuses or makes use of as she thinks fit.

They are very fussy birds at the nest and, even when it is not conspicuous, soon give away its position. They leave it when the intruder is still some paces away but, instead of slipping quietly away and hoping that the nest may escape notice, they at once begin to abuse and swear at him and, if he gets still closer, flutter over his head and round about the bush in which it is placed.

(354) *Pteruthius erythropterus* (Vigors).

THE RED-WINGED SHRIKE-BABBLER.

Pteruthius erythropterus, Fauna B. I., Birds, 2nd ed. vol. i, p. 331.

This very handsome Babbler occurs on the Outer Himalayas from Hazara to E. Assam, Manipur and the Chin Hills; wherever found it is resident, breeding between about 3,500 and 9,000 feet. It probably, however, ascends and nests a good deal higher still than this, for Stevens records it at 9,500 feet in Winter and at 9,600 feet in March in Sikkim.

They breed in thick forest of Fir, Deodar or of mixed Chestnut, Oak etc., often selecting sites deep in the interior and, as they build their nests at great heights from the ground, they are most difficult to find, even after one has located the birds and ascertained that they are breeding.

Nearly every collector refers to the difficulty of finding their nests. Marshall and Cock, who took them near Murree, remark:—"Its nest is exceedingly difficult to find and it was only by long and careful watching that Captain Cock discovered that there was a nest at the top of a very high Chestnut-tree, more than 60 feet from the ground."

Then Rattray, who took three nests in the same place, writes:—
“The nest is, without exception, the most difficult to find. It is a strong neat cradle suspended between two twigs always high up near the top of the tallest trees.”

The nest taken by Marshall and Cock is described three times in Hume's ‘Nests and Eggs,’ but the following is Hume's own summary with the nest in front of him:—

“The nest is a moderately deep cup, suspended between two prongs of a horizontal fork. Externally it is about 4 inches in diameter and about 3 inches in depth. The egg-cavity is very nearly hemispherical, 3 inches in diameter and 1·5 in depth. It is a very loosely made structure, composed internally of not very fine roots and externally coated with green moss. Along the lines of suspension a good deal of wool is incorporated in the structure, and it is chiefly by this wool that the nest is suspended. The fork is a slender one, the prongs being 0·3 to 0·4 in diameter.”

The above description would have done for the only nest I have seen except that tiny twigs had been mixed with the roots and two or three dead leaves had also been added. Many cobwebs were on the outer walls, and a few very fine tendrils were in the inner portion of the nest—one could hardly call it a lining.

Rattray gives practically no description of the nest in his article in the Journal, but *in epistola* he says that they were just as described by Hume. His nests were taken at an elevation of about 8,000 feet and Cock's at 7,000 feet, whilst one taken by Whympfer was at about 5,500 feet.

So few eggs have been taken that it is difficult to say exactly how long the season lasts. Cock's nest was taken on the 30th May, Rattray found them up to the 10th of June and Whympfer took his nest on the 15th April.

Two or three eggs evidently form the full clutch.

In appearance the eggs are very like those of the Himalayan Black Bulbul. The ground is white, with a faint tinge of lilac in one clutch taken by Rattray and an equally faint tint of pink in the one taken by Whympfer. In the first there are numerous tiny flecks and spots of purple-brown, forming broad rings at the larger end and much thinner elsewhere. This clutch is exactly like the single egg taken by Cock. In Whympfer's clutch the spots are more reddish-brown but the same in character and distribution.

The eggs are, as Whympfer says, in many ways very like large eggs of *Molpastes*, yet they have a character of their own which is very hard to express, yet does differentiate them.

In shape the eggs are broad, blunt ovals, fairly fine in texture but glossless. They are very fragile eggs in proportion to their size. They vary in size between $24\cdot3 \times 18\cdot9$ mm. and $21\cdot2 \times 16\cdot0$ mm.

Pteruthius ænobarbus.**THE CHESTNUT-THROATED SHRIKE-BABBLER.****(356) Pteruthius ænobarbus melanotis.****THE HIMALAYAN CHESTNUT-THROATED SHRIKE-BABBLER.**

Pteruthius melanotis melanotis, Fauna B. I., Birds, 2nd ed. vol. i, p. 333.

Pteruthius ænobarbus melanotis, *ibid.* vol. viii, p. 610.

This Shrike-Babbler extends over the outer hills of the Himalayas from Nepal to Eastern Assam, Cachar and Manipur, but apparently not into the Lower Chin Hills, where it is replaced by the next bird. Hodgson records it as breeding in Nepal at 6,000 and 7,000 feet, Stevens gives its Summer distribution in Sikkim as between 2,700 and 6,200 feet, whilst in the Miri-Abor Hills he found them at 5,000 feet. In the hills South of the Brahmapootra in Assam they breed from 4,000 feet up to at least 7,000

According to Hodgson "the nest is placed at a height of 6 to 10 feet from the ground, between some slender, leafy, horizontal fork, between which it is suspended like that of an Oriole or White-eye. It is composed of moss and moss-roots and vegetable fibres, beautifully and compactly woven into a shallow cup some 4 inches in diameter, with a cavity some 2.5 in diameter and less than 1 inch in depth. Interiorly the nest is lined with hair-like fibres and moss-roots."

Since these notes were written I have taken many nests in Assam. The birds keep much to evergreen forest and I have never noticed them breeding in Pine forests. They like humid, but cool, deep forest with ample undergrowth, where they place their nests either on small trees or saplings between five and fifteen feet from the ground or in bushes from four to twelve feet up. The nest is always suspended from small horizontal twigs, never placed in upright forks, and is either a pendent cup or shallow cradle. The nests are very well made and strong in fact, even when they are more or less transparent from below and look fragile. They are made principally of rather coarse fern- and bracken-roots but with these are mixed tiny twigs, odd scraps of leaves, bits of tendril and lichen, whilst the outside is nearly always more or less covered with moss and lichen and strengthened with spiders' webs. There is often no real lining but the innermost part of the nest is of finer material, such as fine hair-like rhizomorph or rachides, while sometimes there is a well-made lining of these.

The breeding season lasts from the end of April—I have eggs taken in the last week of that month—up to about the middle of June.

The eggs number four or five but I have taken two hard set, and have seen two young in a nest. On the other hand I have taken clutches of six, though this number is, perhaps, unusual.

The eggs are pretty, delicate looking things and the colour varies considerably, though the character and distribution of the markings is fairly constant. One type is just a small finely-marked replica of the preceding bird. The ground is a pale lilac-white and the stipplings are purplish-brown, numerous everywhere, but coalescing to form a ring round the larger end. Another type has the spots rather larger and sparser and of a light rufous, whilst the ground-colour is a pale cream or pinkish-white. A third type has a white ground with reddish-brown spots. Both the second and third types have a few underlying spots and blotches of lavender or pinky grey.

Intermediately coloured eggs seem quite exceptional, practically all the eggs I have taken being definitely of one type or the other.

Forty-two eggs average 17.9×13.5 mm.: maxima 19.1×14.4 mm.; minima 16.8×13.0 and 17.4×12.6 mm.

The texture is rather fine and close but glossless and the eggs decidedly fragile. In shape they are broad ovals, occasionally somewhat longer.

Both birds take part in incubation. They are very shy and slip quietly off the nest, often before one is in sight of it, but, if silence is kept, they return, and I have several times caught both parents on the nest within a quarter of an hour of finding it.

(357) *Pteruthius ænobarbus intermedius* (Hume).

THE BURMESE CHESTNUT-THROATED SHRIKE-BABBLER.

Pteruthius melanotis intermedius, Fauna B. I., Birds, 2nd ed. vol. i, p. 335.

Pteruthius ænobarbus intermedius, ibid. vol. viii, p. 610.

Recently both Hopwood and Mackenzie have found this race breeding in the Chin Hills. Before this its range was believed to extend throughout the hills of Eastern Burma from the Bhamo Hills to Tenasserim. More actual specimens are, however, required to enable one to say for certain to which form the Chin Hills bird belongs.

Hopwood and Mackenzie both took nests and eggs of this bird in the Chin Hills but have recorded nothing concerning them. They tell me, however, that the nests, taken in evergreen jungle, were just like those described for the preceding bird.

Hopwood took his nest with three eggs in May, whilst Mackenzie's two nests were taken on 29th of April and 1st of May; they contained three, four and two eggs respectively, which are exactly like the three principal types of *P. æ. melanotis*, all three clutches being quite different to one another.

The average of nine eggs is 18.5×13.3 mm.: maxima 20.4×13.1 and 18.0×13.6 mm.; minima 17.7×13.4 and 19.0×13.0 mm.

As may be seen by the measurements, one clutch of three is very, probably abnormally, long.

Pteruthius xanthochloris.**THE GREEN SHRIKE-BABBLER.****(358) Pteruthius xanthochloris xanthochloris** Hodgs.**THE NEPAL GREEN SHRIKE-BABBLER.***Pteruthius xanthochloris xanthochloris*, Fauna B. I., Birds, 2nd ed. vol. i, p. 335.

This race of Green Shrike-Babbler is resident and breeds in Nepal, Sikkim and the Himalayas as far East as Eastern Assam between 7,000 and about 10,000 feet. Stevens obtained it in Winter at 9,500 and 9,600 feet, keeping to high evergreen forest, preferably to such as had ample undergrowth.

There is nothing on record as to the nidification of this bird, but Messrs. J. C. Macdonald and W. P. Masson have sent me four nests with four of the parent birds containing 3, 3, 4 and 3 eggs respectively. The nests were said to have been all taken in very wet tree-forest on the Singile La Ridge above Darjiling, at elevations between 8,000 and 9,000 feet. The two nests taken by Macdonald were pendent from branches of "Pine-trees," one 12 feet from the ground and one about 25 feet. Masson's nests were "built under small branches in the upper part of fir-trees."

The nests sent were cradles or cups, in two cases made of fine roots and tiny twigs, very strongly interlaced, with a few scraps of moss and lichen and lined sparingly with very fine bents. These two nests measured about $3\frac{1}{4}$ inches across by about 2 inches deep outwardly and inwardly about $2\frac{1}{2}$ inches by 1 inch.

Masson's two nests were similar in size and shape but were made almost entirely of very fine black fibrous material which looks like black shreds torn from the trunks of palm-ferns; the scanty lining was of these and a few fine roots.

The nests were all four taken between the 4th and 18th June but, in a letter accompanying the first of Masson's nests, he said he had found a nest with young on the 28th May by seeing the parents going to the nest with food. This put him on to finding the two nests he obtained with eggs.

The eggs are typical *Pteruthius* eggs in character, shape and texture. One clutch has the ground a pale pink with numerous small reddish-brown blotches, the eggs of this clutch being very like those of *P. erythropterus* in all but size. A second clutch might be taken for the eggs of the Indian Pipit; the ground is greyish-white, well covered all over with grey-brown freckles; the third clutch is similar but has dark blackish-brown markings; whilst the fourth has a very pale clay-brown ground and the same multitude of little blotches of darker clay-brown.

Two other eggs sent me without nests or data are like the first red type.

Fifteen eggs average 18.8×14.7 mm.: maxima 19.7×14.4 and 19.0×15.2 mm.; minima 18.1×14.0 and 18.6×14.2 mm.

(359) *Pteruthius xanthochloris occidentalis* Harington.

THE SIMLA GREEN SHRIKE-BABBLER.

Pteruthius xanthochloris occidentalis, Fuana B. I., Birds, 2nd ed. vol. i, p. 336.

This, a Western form of the preceding bird, is found from the Sutlej Valley to Garhwal and probably Western Nepal. Rattray found it common in Murree from 7,000 feet upwards, Whympere records it as breeding rarely at Naini Tal, probably at about 5,500 feet, whilst Osmaston took several nests at Chakrata between 8,000 and 9,000 feet, and some years before this in the Tons Valley at 8,000 feet. In the Simla States it must be comparatively common between 6,500 and 8,000 feet, and here Jones took three or four nests in the years 1915 to 1919.

The first collector to discover the nest and eggs of this Shrike-Babbler was B. B. Osmaston, who thus writes about them (Journ. Bomb. Nat. Hist. Soc. vol. ix, p. 65, 1897):—"On April 14th I found a nest of this bird containing two fresh eggs. The nest was at an elevation of 8,000 feet, in mixed spruce and deodar forest, and was suspended like that of an Oriole or White-eye from the slender horizontal forked twig of a deodar sapling, about 7 feet above the ground. It was in shape a deep cup, very thin and delicate, but neatly put together.

"The groundwork of the nest consists of root-fibres and a grey hair-like tree lichen (*Usnea* sp.), decorated on the outside with ordinary grey leaf lichens, the whole structure being bound together with silky spider cocoons and threads. The deep cavity is lined with fine black hair-like fibres (the rhizomorph of a fungus) and the nest is attached to the twigs by the red egg-cocoons of a spider.

"Two appears to be the full complement of eggs for this species as I waited two days after finding the nest, but no more were laid."

In the same journal (vol. xxiv, p. 369, 1916) A. E. Jones gives a good account of another nest taken near Simla at 8,000 feet on the 12th June:—"The nest was suspended from the angle where two slender horizontal twigs of a wild Laurel bifurcated, and was 18" from the ground. The locality is well wooded and has abundant undergrowth.

"Materials of the nest, which is a very flimsy structure, are green moss and very fine (hair-like) grass. This is smeared over with a fine layer of spiders' webs and then exteriorly decorated with flakes of lichen. The lining consists of black stems of the maidenhair fern and fibrous grasses. Suspension is effected by spiders' webs. It is a deep purse-shaped structure, but the edge where there is no suspension is much lower than where this has been effected.

"Dimensions of the nest are: Depth, exterior, 4 inches by $2\frac{1}{2}$ inches (this at the point where suspension ceases). Depth, interior, $2\frac{1}{4}$ inches by $1\frac{1}{4}$ inches (also where suspension ceases).

"There were two slightly incubated eggs in the nest."

Round Simla this Shrike-Babbler seems always to place its nest very low down, and other nests of Jones were taken from "a tiny fork of a laurestinus bush 2 feet from the ground"; from "a branch of a bush only a foot from the ground"; and again "from 2 tiny twigs of an oak $3\frac{1}{2}$ feet from the ground."

Osmaston found his nests built in Silver Firs and Oaks four and five feet from the ground, whilst one of Rattray's was in a Deodar fifteen feet from the ground.

All the nests appear to have been very similar in construction, all were pendent and all were taken in forest, generally consisting of Silver Fir, Spruce, Deodar, Oakse etc., with plenty of undergrowth.

The breeding season seems to be April, May and June, though Rattray took two nests in July and Buchanan one in August in the Murree Hills.

They lay two to four eggs, one number as often as the other.

The eggs apparently go through much the same range of variation as the *ænobarbus* group but, undoubtedly, the most common type has a pale pink ground with blotches of chestnut-red, generally forming a ring or cap at the larger end and sparse elsewhere. A clutch of four taken by Rattray is rather unusual; the ground is a decided, though not bright, pink and the freckles and blotches consist of purple brown, numerous everywhere but coalescing almost to form caps at the big ends.

In shape the eggs vary from very broad ovals to rather long narrow ovals with decidedly pointed smaller ends. The texture is fine and close but the surface varies from dull with no gloss to a quite high gloss, especially noticeable on the palest eggs.

Thirty-four eggs average 18.4×13.7 mm.: maxima 21.0×16.0 (one of a clutch of exceptionally big eggs taken at Murree, all four over 20.0×15.2 mm.); minima 17.0×13.3 and 17.6×13.0 mm.

Aethorhynchus lafresnayi *.

THE GREAT IORA.

(361) **Aethorhynchus lafresnayi innotata** Blyth.

THE NORTHERN GREAT IORA.

Aethorhynchus lafresnayi, Fauna B. I., Birds, 2nd ed. vol. i, p. 338 (part.).

Kloss gives the restricted area for the Northern form, *Ae. l. innotata*, as South Arrakan to about latitude 8° , the typical form, *Ae. l. lafresnayi*, extending South from this throughout the Malay Peninsula.

* Kloss, who has had much more material available for comparison than has been possible in England, considers this species is well divisible into two races. Accepting his decision, our bird will have to bear the above name.

There is nothing on record about the breeding of our bird, but Kellow took two nests of the Southern form near Simpang, in the Malay States. The nests, two eggs and birds were sent to me and later two other eggs.

The nests were all three built in bushes in evergreen forest, near the outskirts, at heights of three to five feet from the ground. The bushes also had nests of red ants on them, the ants swarming everywhere and making it very difficult to get at the nests. These were just like those of the Common Iora but rather bigger, more bulky and less tidy, though the packing and travelling may have had something to do with this. They measure, roughly, about $3\frac{1}{2}$ inches across by 2 deep externally, and are made entirely of soft grass and vegetable fibre matted over everywhere with spiders' webs. The three nests all seem, from the marks on them, to have been placed in upright forks or clusters of twigs.

They were taken on 4th January, 27th March and 16th June, so the breeding period would seem to be very indefinite for the Southern bird.

The eggs sent me are typical Ioras' eggs. In both clutches the ground is white; the primary markings consist of longitudinal blotches of brown, very long in one set, rather shorter and more reddish in the other. The secondary markings are similar in character but pale grey in colour, having a violet tinge where they show through the brown ones. Both markings are most numerous at the larger ends, where they form rings. In shape one pair are ordinary ovals, the other rather short, broad ovals. The texture is fine and smooth but not glossy.

One pair measure 17.3×14.1 and 17.3×14.4 mm.; the other pair 18.7×14.0 and 18.9×14.3 mm. Although over the average size for the Common Iora, these eggs seem very small for the Great Iora, and Kellow informs me that two eggs kept by him measure 20.2×15.3 mm.

Ægithina tiphia.

THE IORA.

(362) *Ægithina tiphia tiphia* (Linn.).

THE COMMON IORA.

Ægithina tiphia tiphia, Fauna B. I., Birds, 2nd ed. vol. i, p. 340.

I can add nothing to the distribution of this Iora given in the 'Fauna,' and where found it is resident and breeds. "All India except South Travancore, East of a line, roughly speaking, from the head of the Gulf of Cambay through Abu to Simla and excluding that portion of South Central India occupied by *Æ. t. humei*. It extends through Assam, Burma, certainly to the North of the Malay Peninsula; East to Western Siam; Annam (Robinson and Kloss) and the Kachin Hills. There is also a specimen in the British Museum from Koorassan, in Persia."

It is normally a bird of the plains but ascends the Himalayas to some height. In Sikkim Stevens gives its extreme limit as 5,000 feet (Teesta Valley). In the Simla States it apparently occurs, though, perhaps, exceptionally, up to 8,000 feet and, finally, Whympers obtained its nest at about 5,000 feet in Naini Tal. At all these higher elevations it is quite possible the bird moves up and down to some extent with the seasons, though this cannot be called a migratory movement.

Wherever found it is a common bird, frequenting gardens, orchards and open cultivated country but, at the same time, it breeds in the less inhabited parts both in forest, if open, and in bamboo- and scrub-jungle. So far as I know it never nests in the more heavy humid forests unless at the very edge of them.

The nests are cups deeper than hemispherical; Hume gives the average of the nests he has seen—"cavity about $2" \times 1\frac{1}{4}"$ in depth"—and this agrees well with my own experience. They are very beautifully made compact little nests, the walls being so closely matted and welded together that they may be less than a quarter of an inch thick and are very seldom as much as half an inch. The materials used are shreds of grass-blade, fine soft fibres and, sometimes, a few very fine soft roots all thickly coated with cobwebs. If placed between upright twigs the materials are wound round them, as are the cobwebs, but if placed on a horizontal branch, a very favourite position, it seems generally to be attached to it by cobwebs alone, although the base of the nest may come some quarter inch or so down the sides of the supporting branch or twig. The lining is nearly always of the finest grass-stems but, in the jungles, I have seen brown rachides used and, now and then, a few very fine hair-like roots.

A rather exceptional nest taken by myself at Dacca was made of very fine shreds of reed-blades and strips of wild indigo leaf, and was placed on a small bush among reeds in a sandbank in the Brahmapootra.

In some instances, when the nests are placed in upright twigs, the bottoms of the nests are built to conform to the shape made by the twigs. Hume mentions one such as conical in shape, and I have seen others with the base prolonged to fit into an inch or more of the vacancy below the real base of the nest.

They do not, as a rule, place their nests at any great height from the ground. Often they are built in bushes between two and four feet from the ground but, even more often, in Mango-trees from six to fifteen or even twenty feet up. Blewitt, writing from Raipur, says that "both birds assist in the building of the nest and there evidently appears to be no choice of any particular kind of tree on which to build. I have found them indiscriminately on the mango, mowa, neem and other trees." An unusual site is a bamboo-clump, but even this is sometimes selected, the birds choosing a horizontal twig on which to build their home.

When building their nests they are rather shy birds and resent

being watched, deserting on very little provocation but, once they have laid, they sit very close and stand a great deal of interference before leaving for good. Davidson records that in Satara and Sholapur he thrice in one year took eggs from the nests of Ioras, yet the birds continued to lay and did not forsake the nest. In North Cachar, also, I once took a clutch of exceptionally beautiful eggs from a nest in a *Beauganvillea* hedge in my garden, yet the birds returned and laid another clutch which, though I admit with reluctance, I allowed them to hatch and rear. These two little birds became very tame and confiding and would feed their babies when I was standing within a few feet of them.

The breeding season varies considerably. In Assam, Behar and Bengal May to July seem the favourite months, whilst in the driest parts the birds wait for the Rains to break before starting their domestic arrangements. On the other hand, Mr. E. Tooth records the taking of the nest of an Iora on the 13th March, containing two fresh eggs, at Dumdum, near Calcutta.

Hume gives the time generally for India as May to September, Brooks gives July for Mirzapur, whilst Blewitt says July to September in Raipur. In the Bombay Presidency, Satara and Sholapur, Davidson says "this bird lays from June to August," and in Burma Oates and Bingham found nests in May, June and July. In Siam E. G. Herbert got some of his eggs in March, but says that May is the general time for laying, though odd nests may be taken in June. Herbert, it should be recorded, found one nest in a very unusual position—"on the horizontal part of the centre stem of a cocoanut palm leaf."

The eggs number two or three, very exceptionally four, and are curious and yet beautiful eggs. The colour varies very considerably but there are two main types, one giving the general impression of a grey egg, the second that of a pink egg. The following types, given in more detail, are all frequently met with :—

(1) Ground-colour very pale creamy-grey with long streaks of brownish-grey running down the egg lengthways. These eggs look as if someone had spilt some grey-brown wash over the large end of the egg and it had trickled down towards the small end, making a mark *en route* like that of a drop of rain running down a window-pane.

(2) Exactly the same but with a soft pink ground-colour and streaks of reddish-brown, with others underlying of pale neutral tint.

(3) Like the two above types but with much shorter streaks, and these more or less mixed with a few blotches, in the one type of grey-brown, in the second type of reddish-brown and neutral tint.

(4) Very like eggs of *Rhipidura* (the Fantail Flycatchers), a creamy-yellow ground with a ring at the larger end of dark brown and lavender blotches, with a few of the same scattered elsewhere.

(5) Pure white ground with chestnut and lavender blotches,

mostly at the larger end. There are a few longitudinal blotches (one cannot call them streaks), but these eggs do not give the impression of streaked eggs. This type I have only seen in eggs taken in Siam.

All sorts of intermediate types occur, and I have one red clutch and one grey clutch so heavily pigmented that the streaks all run into one another and nearly cover the whole egg. One egg in a clutch of the ordinary grey type has one streak of blood-red, looking curiously out of place on the grey surface.

Sixty eggs average 17.6×13.9 mm.: maxima 19.0×14.3 and 18.1×15.0 mm.; minima 16.2×14.0 and 18.2×13.2 mm.

Siam eggs, in addition to their unique colouring, are very small, running down to a minimum of 16.0×12.4 mm.

The courting display of this little bird is very beautiful. The cock rises up some 20 or 30 yards into the air in front of the place where the female is sitting and then, when at the top of his rise, puffs out all the long fluffy feathers of the lower back and rump until he looks like a little powder-puff with quivering wings. Very slowly he drops almost vertically to the ground, often slowly revolving as he does so, apparently with the aid of his tail, which is wide-spread all the time. This demonstration may be carried out many times, and is sometimes echoed to some extent by the female before further addresses are made.

(363) *Ægithina tiphia multicolor* Gmelin.

THE CEYLON IORA.

Ægithina tiphia zeylonica, Fauna B. I., Birds, 2nd ed. vol. i, p. 342.

Ægithina tiphia multicolor, ibid. vol. viii, p. 610.

This little Iora is found in Ceylon and, apparently, extends into the extreme South of Travancore, though more material is required to define its range in the South-West of India.

Legge describes its haunts, in which, also, it breeds, as follows:—"Owing to its partiality for large trees, which are usually found about the houses of Europeans in Ceylon, this little Bulbul is one of our most familiar birds. It is fond of open groves of trees, the edge of jungle, and vegetation at the sides of roads, and it is very partial to the low scattered jungle bordering the sea-shore on the North Coast." It is apparently found in the hills up to about 2,500 feet.

The nest is in every respect similar to that of the Common Iora and needs no further description. According to Wait, "the breeding season lasts intermittently from November to June."

Although such a common bird, very few nests with eggs have been taken, and the only ones I have seen have been five given me by Wait and one of a clutch of two taken by T. E. Tunnard. These are all of the grey type of *Æ. t. tiphia*.

My six eggs average 18.4×13.4 mm., and Wait gives the average of his series as 17.8×13.4 mm. The maxima in mine are 18.0×13.9 mm. ; minima 16.3×13.9 and 17.8×12.9 mm.

(364) *Ægithina tiphia humei* Stuart Baker.

THE CENTRAL INDIAN IORA.

Ægithina tiphia humei, Fauna B. I., Birds, 2nd ed. vol. i, p. 342.

This race was named by me from a Raipur bird and there are similar specimens in the British Museum from South and West Rajputana, the Central Provinces and the United Provinces South of the Ganges.

It is the same familiar little bird in its own area as are the other Ioras elsewhere and is just as common, frequenting gardens, parks, villages, road-sides and bush and scrub-jungle.

Like the Common Iora, it seems very partial to Mango-trees as a site for its nest but, like that bird also, it will breed in practically any bush or tree that happens to take its fancy, and in Neemuch Barnes found them nesting in Guava-trees.

The breeding season seems to be a long one and I have eggs taken in April and July by Barnes in Saugur ; in May and July, in Khamptee, by MacArthur and Kemp, and in July and August round Baroda by Sir Percy Cox, whilst Littledale records its breeding season for the same place as June to October.

There is nothing to note about either the nest or eggs, both of which are indistinguishable from those of the other Ioras, but I have one clutch of three eggs which is rather unusual. The ground-colour is a pinkish-clay and the spots and small smudges of dark brown and lavender are all confined to the larger end and are not streaky.

The number of eggs laid is two or three, though I have one clutch of four taken by Barnes in Saugur.

The average of twenty eggs is 17.5×13.5 mm. : maxima 19.0×13.7 and 17.9×14.0 mm. ; minima 16.5×13.0 mm.

Ægithina viridissima.

THE GREEN IORA.

(365) *Ægithina viridissima viridissima* (Bonap.).

THE MALAYAN GREEN IORA.

Ægithina viridissima, Fauna B. I., Birds, 2nd ed. vol. i, p. 343.

Within our limits the Green Iora is only found in Tenasserim, whilst outside it extends down peninsular Siam, the Malay States to Sumatra.

I know nothing about the nesting of this little Iora beyond the fact that Kellow found it breeding near Perak, in the Federated Malay States, in May. A nest and two eggs given to me are exactly like those of *Ægithina tiphia*. The nest is a beautiful little cup made of fine shreds of grass and what looks like jute-fibre, all most strongly and compactly wound together and plastered all over with cobwebs. The lining is of the finest grass-stems.

The measurements are: outside diameter 2 inches, depth $1\frac{1}{2}$ inch; inside about $1\frac{3}{4} \times 1\frac{1}{4}$ inch.

It was placed in a small vertical fork of a small tree in a glade in evergreen jungle, and was taken on the 25th May.

The two eggs measure 18.0×14.0 and 17.6×13.8 mm.

(366) *Ægithina nigrolutea* (Marshall).

THE GOLDEN-BACKED IORA.

Ægithina nigrolutea, Fauna B. I., Birds, 2nd ed. vol. i, p. 344.

The range of this bird—it probably breeds wherever found—is rather curious, overlapping that of both the Common Iora and the Central Indian race, yet never intergrading with either. Under these circumstances it cannot be reduced to the status of a subspecies of *Ægithina tiphia*. I have defined its range fully in the 'Fauna' and quote it here:—"The North-West of India. It is found in Cutch; in Rajputana where it overlaps the range of *Æ. t. humei* for some distance; in Southern and South-Western Punjab; North-West Provinces; it occurs occasionally in the North of the Central Provinces and again North of the Ganges as far as Behar and the Santhal Parganas, much overlapping the range of *Æ. t. tiphia*."

There is an excellent account of the breeding of this bird in Cutch by Lieutenant C. D. Lester. He writes (Journ. Bomb. Nat. Hist. Soc. vol. x, p. 695, 1897):—"This bird is fairly plentiful all the year round, but is less conspicuous from September to May, owing to the fact that the male does not don his courting dress until the latter month. When making love to his mate or wrangling about the site of the nest, he often breaks into a sort of chattering note resembling that of the Blue Titmouse at home.

"The nests are usually placed in a *Mimosa* of sorts. I believe the *Mimosa* is that known in Hindustani as Kheir. The nest is a shallow cup, rather broad for its depth, very neatly made of fibre with a few hairs inside and cobwebs outside. It somewhat resembles a Minivet's nest but is broader and less ornate, and equally hard to find. Occasionally, but rarely, the nest is built in a forked twig of the 'Pipal' (*Ficus religiosa*). I have only obtained one nest thus placed and that, I feel sure, was that of a pair whose nest I had previously taken in a *Mimosa* close by.

The birds frequent low thorn jungle, rather open than otherwise, but may be seen about the Bhuj Cantonments."

Barnes says that it is very common at Deesa, whilst in Khandeish this and the Common Iora are equally abundant, breeding together and at the same time. Nest and eggs, without the parent birds, are indistinguishable from one another. In Deesa he took nests with eggs in June and July, whilst Davidson took nests in Dhulia, Khandeish, in the latter month.

In Mhow Kemp found them breeding during May, June and July, sending me nests taken in these months, whilst in Baroda General Betham took nests in August. Here he found them frequently breeding in road-side trees, often easily accessible and quite visible.

The number of eggs laid is generally two or three, but Kemp twice took single eggs which were considerably incubated. They are exactly like the eggs of the Common Iora, but I have never seen any of the pink type. On the other hand I have a pair of eggs of the very pale grey type with a number of indefinite wavy lines of reddish as well.

Twenty eggs average 17.1×13.1 mm.: maxima 18.0×13.3 and 17.3×13.5 mm.; minima 17.0×12.8 and 17.2×12.6 mm.

(367) *Myzornis pyrrhoura* Blyth.

THE FIRE-TAILED MYZORNIS.

Myzornis pyrrhoura, Fauna B. I., Birds, 2nd ed. vol. i, p. 345.

This bird has been found only in Nepal and Sikkim, probably only breeding at great heights. Stevens says that it is locally distributed at very high elevations. "On the Singile La Ridge it occurs up to 10,160' in March and April and in all probability not found below 7,500 or thereabouts."

On the Cho La Range Blanford found it common at 11,000 feet in August among brushwood and on mossy banks.

The only record of its nidification is Hume's note in 'Nests and Eggs':—"I have received a single egg said to belong to the Fire-tailed *Myzornis* from Native Sikkim, where it was found in May in a small nest (unfortunately mislaid), which was placed on a branch of a large tree at no great height from the ground. The place where it was found had an elevation of some 10,000 feet. Although the parent bird was sent with the egg, I cannot say that I have any great confidence in its authenticity and only record the matter *quantum valet*."

"The egg is a very regular, rather elongated oval. The egg was never properly blown and has been consequently somewhat discoloured. It may have been pure white and it may have been fairly glossy when fresh, but now it is a dull ivory white with scarcely any gloss. It measured 0.68 in length by 0.5 in breadth."

Chloropsis aurifrons.

THE GOLD-FRONTED CHLOROPSIS.

(368) **Chloropsis aurifrons aurifrons** (Temm.).

THE INDIAN GOLD-FRONTED CHLOROPSIS.

Chloropsis aurifrons aurifrons, Fauna B. I., Birds, 2nd ed. vol. i, p. 346.

This beautiful bird has a very wide range, breeding practically over the whole of it except in the actual plains. It is found throughout the Lower Himalayas from Garhwal and the Simla States to Eastern Assam. Thence it extends South in India to the hilly country of North and North-East India as far as Chota Nagpore, Rajmahal, Santhal Parganas etc. It is common over the whole of hill Burma to Tenasserim, where it meets *C. a. inornata*; it also occurs in the Shan States and in North and Central Siam.

I can find no notes on the nidification of this bird other than my own in 'The Ibis' of January 1895. Since then I have taken a considerable number more nests, which have modified and added to the knowledge then in my possession. This Chloropsis is a bird of evergreen forests during the breeding season, though it keeps to the more open parts or the outskirts of the heavier forests. It seems to like trees at the edge of jungle tracks or those on the open banks of the larger hill-streams, or even trees standing a few yards inside forest on the borders of cultivation. They also breed in coppices of thick forest filling in pockets in otherwise grass-covered hills but, when breeding in these, they choose big trees inside the woods. They breed at all elevations from 2,000 to 6,000 feet, but most often round about 3,000 to 3,500 feet in the warmer, wetter valleys. Occasionally they may breed as low as 1,000 feet, but I have no actual proof of their doing so.

The favourite site for the nest is very high up in a fork of an outer branch of some forest tree, often 30 or 40 feet from the ground and on branches so thin that they are practically safe from any but an avian thief. Sometimes, however, they place their nests on smaller saplings and trees, either in outer branches or in small forks where they are more easily got at. Nests on the higher branches can generally be got only by tying the nest-branch to another and then cutting it off and gradually lowering branch, nest and eggs to the ground.

The nest is a cross between that of some of the Bulbuls, such as *Microscelis*, and the Shrikes of the genus *Lalage*. They are generally pendent or semi-pendent between horizontal twigs or forks, and in these instances are in shape shallow saucers 4 inches or less across by 2 or less in depth. They are made of fine twigs, grass, leaves and a little moss, wound about and attached

to the supporting twigs by shreds of grass and strips of bamboo-leaves, and they are lined with roots and fine grass-stems. On the outer part of the nest there are always a number of cobwebs used both to strengthen the nest itself and its attachment to the supports. Occasionally a nest is decorated outside with a little moss or lichen. Nests built in between upright twigs or forks are similar in construction but often deeper, sometimes measuring as much as 3 inches in depth.

The birds give away the position of the nest when once their habits are known, but at first I found it very difficult to locate them unless they were lower down than usual. The birds, however high their nests may be, nearly always descend a tree down to about 20 feet or so and curse all intruders bitterly from that level and then fly right away. It is necessary, therefore, generally to look much higher up in the trees than the level at which the birds are melodiously swearing at you.

I have taken eggs as early as the 3rd May and as late as the 16th August, but June is the month in which most eggs are laid.

The number in a full clutch is two or three, most often, I think, the former.

In colour these eggs are rather remarkable for a Timaliine bird, though they somewhat approach some of the Bulbuls such as *Iole icterica*. They remind one at once of the eggs of the White-tailed Blue Robin and of the Flycatchers of the *Niltava* and *Eumyias* groups. At the same time the eggs are always definitely marked more or less and never give the impression of uni-coloured eggs when looked at from a little distance. The ground-colour is a pale cream or buffy-cream stippled, freckled or lightly blotched all over with pale reddish. In some eggs these markings are equally stippled all over the surface, in others most numerous towards the larger end, yet never forming rings or caps. I have one clutch of three which are pale buff, unmarked except for a few tiny specks of deep red at the larger end of two eggs, and here and there over the whole surface in the third. My description of the eggs in 'The Ibis' (1895) gives a somewhat wrong impression, though perfectly correct for the few I then had seen. When there are series before one of both the Gold-fronted Chloropsis and Jerdon's Chloropsis, the difference between the two is really startling, and one would think that the two series could not belong to birds of the same genus, though *aberrant* eggs of each group may approach the other.

In shape the eggs are typically long ovals, a little pointed at the smaller end. The surface is smooth and fine but quite glossless.

Twenty eggs average 23.4×15.5 mm.: maxima 24.6×15.6 and 21.1×16.5 mm.; minima 20.2×15.4 and 23.1×15.0 mm.

(369) ***Chloropsis aurifrons davidsoni*** Stuart Baker.

THE MALABAR CHLOROPSIS.

Chloropsis aurifrons davidsoni, Fauna B. I., Birds, 2nd ed. vol. i, p. 348.

This Malabar race of *Chloropsis* is resident both in the lower hills and low country from Khandala, in the Bombay Presidency, South down the West coast to Ceylon. On the Malabar coast it probably breeds most freely between about 1,500 and 3,000 feet but I can find no account of its nest having been taken, and Ferguson says that it does not occur at all in the plains.

The only person who has taken its nest and eggs is Mr. W. A. T. Kellow, who sent me a nest and two eggs from Ratnapura, in Ceylon, which were taken by him on the 25th of January.

The nest is a pendent cradle of tiny twigs, a leaf or two, roots and grass with a few scraps of moss on the outside. The lining consists merely of a few roots rather finer than the rest of those used in the construction of the nest. The materials are well put together, a few cobwebs being used to help bind them and also to attach them to the prongs of the small fork in which it was built. The branch was an outer one of a small tree and about 15 feet from the ground, the tree standing in comparatively open forest but close to much heavier bigger forest.

The two eggs which the nest contained are a very pale cream, one egg very faintly blotched with pale reddish, the other with rather darker spots and small irregular blotches of darker red-brown. They measure 21.0×15.0 and 21.0×15.1 mm.

***Chloropsis hardwickii*.**

THE ORANGE-BELLIED CHLOROPSIS.

(371) ***Chloropsis hardwickii hardwickii*** Jard. & Selby.

THE INDIAN ORANGE-BELLIED CHLOROPSIS.

Chloropsis hardwickii hardwickii, Fauna B. I., Birds, 2nd ed. vol. i, p. 349.

Our Indian form of *hardwickii* is found from the Simla States and Garhwal to Eastern Assam. South it ranges through Manipur and Burma to Tenasserim and East to the Shan States, Northern and Western Siam. The bird from the Malay States has been separated by Robertson and Kloss under the name of *C. hardwickii malayensis*.

It breeds in the Assam Hills up to 6,000 feet but, more generally, between 2,000 and 4,000 feet; in Sikkim Stevens gives its highest elevation as 5,500 feet, but thinks it probably works up to 6,000. In Naini Tal Whympyer took nests round about 4,000 feet.

Like the last, this also is a bird of forests and densely wooded country, though it may feed on solitary trees right out in the open when these are in flower.

The nest is much like that of the Gold-fronted Chloropsis, a cradle made of roots and fibres, tiny elastic twigs and a few oddments, with a lining of fine roots. The only difference I have been able to notice is that the Orange-bellied Chloropsis seldom, if ever, makes use of moss with which to decorate its nest. It also places it still higher up in big trees and, though now and then one may be taken from heights 20 or 25 feet from the ground, most are over 30 feet up and many as much as 40.

Whymper describes three nests taken by him as follows:—“The nests were all placed towards the extreme tops of fairly large trees, thirty to forty feet high, and were well concealed among the leaves; they are slung between two twigs (not in a fork) and are very like Bulbuls’ nests, made of fine roots and fibres with a partial lining of black rootlets, measuring 2 inches in diameter and $1\frac{3}{4}$ deep.”

They differ from Bulbuls’ nests in being generally much more shallow. Across the top they may measure anything between $3\frac{1}{2}$ and $4\frac{3}{4}$ inches but in depth seldom as much as 2 inches. Indeed, the cavity itself is so shallow that it seems strange that the eggs are not more often blown out, especially when one knows in what swaying, easily blown about branches they are built in.

In North Cachar I took no nests until the last week in May, but in the adjoining Khasia Hills I took one with three eggs on the 10th of that month. Many birds, however, breed late and I have taken nests with fresh eggs as late as the 3rd August.

Whymper took two of his nests in July, one on the 4th and one on the 8th.

The eggs are just like those of the Gold-fronted Chloropsis, perhaps on an average darker and better blotched, but they range over the same degree of variation. The texture is the same as in *aurifrons* and differs from that of *Notodela* and *Niltava* eggs in having the surface much less hard and glossy, though the texture itself is quite as fine. They are also decidedly more fragile than the eggs of *Notodela* (*Muscisylvia*).

Twenty eggs average 22.8×15.9 mm.: maxima 24.6×16.7 and 23.1×17.5 mm.; minima 21.8×16.3 and 22.1×15.1 mm.

Chloropsis cochinchinensis.

THE BLUE-WINGED CHLOROPSIS.

(372) Chloropsis cochinchinensis cochinchinensis Gmelin.

THE BURMESE BLUE-WINGED CHLOROPSIS.

Chloropsis icterocephala chlorocephala, Fauna B. I., Birds, 2nd ed. vol. i, p. 350.

Chloropsis cochinchinensis cochinchinensis, ibid. vol. viii, p. 611.

The Burmese Blue-winged Chloropsis is found over the whole of Burma, Siam and Cochin China, and also occurs in Manipur

and the hills of the Surrma Valley, both in Cachar and the Khasia Hills. It is difficult to say what is the breeding elevation of this Chloropsis. The nests taken by myself have all been found between 2,500 and 4,000 feet, except one taken at 2,000 feet, but its status in the Assam hills is doubtful; some winters one sees numbers, in other winters none at all. In those years in which it is fairly common in the Cold Weather a few pairs seem to breed in the hills but their breeding is never certain, and it would appear as if this bird was subject to local movements and periodic irruptions from Burma. I have been three years at a time in North Cachar without seeing a single specimen.

The birds I have found breeding have all been in evergreen forest and, unlike the species already dealt with, penetrate well into the interior, selecting trees far from any opening. The only exceptions to this are one or two nests I obtained from the thin evergreen forest at the foot of the Lilancote cliffs in very broken ground.

Like the other Chloropses, they place their nests at heights from 20 to 30 feet up in medium-sized or high trees, selecting two or three twigs or a small fork in one of the thin outer branches from which to suspend them. They only differ from the nests already described in having a greater variety of material used and in having the outside often much decorated with moss or lichen. One nest I found in the Khasia Hills was composed almost entirely of the red tendrils of a yellow *Convolvulus* mixed with grass, roots and a leaf or two; a second was bound with dried weed-stems, in addition to the usual roots etc.

The earliest nest taken was on the 26th April, a few in May, none in June, and then one or two more in both July and August. It may be, therefore, that this Chloropsis has two broods in a year.

The eggs number two or three, generally two, and are like those of the *aurifrons* group, but two of the pairs in my series have a very pale ground.

Sixteen eggs average 22.3×15.5 mm.: maxima 23.2×15.4 and 22.3×16.0 mm.; minima 21.0×14.4 mm.

(374) *Chloropsis jerdoni* (Blyth).

THE MALABAR GREEN-WINGED CHLOROPSIS.

Chloropsis jerdoni, Fauna B. I., Birds, 2nd ed. vol. i, p. 352.

The present Chloropsis, hitherto known as Jerdon's Chloropsis, is spread over a great part of India and Ceylon. It is found from Sitapur, Fyzabad and Barti on the North, Baroda and Panch Mahals on the West, and to the Rajmahal Hills and Midnapore on the East.

This is a plains Chloropsis, though it seems to prefer broken country to that which is absolutely level, and it does not occur in the alluvial flats of Eastern Bengal and Assam.

In and round about Raipur Blewitt writes thus of its nidification:—"The Green Bulbul breeds in July and August. The bird does not preferentially select any one description of tree for its nest, though the greater number secured were taken from mowah trees (*Bassia latifolia*). The nest is generally firmly affixed at the fork of the end twigs of an upper branch from 15 to 25 feet from the ground. Sometimes, however, eschewing twigs, the bird constructs its nest on the top of the main branch itself, cunningly securing it with the material to the rough exterior surface of the branch."

Referring to Blewitt's nests, Hume writes:—"The nest is a small, rather shallow cup, at most $3\frac{1}{2}$ inches in diameter and $1\frac{1}{2}$ in depth; is composed externally entirely of soft tow-like vegetable fibre which appears to be worked over a light framework of fine roots and slender tamarisk-stems, amongst which some little pieces of lichen are intermingled. There is no attempt at a lining, the eggs being laid on the fine and slender twigs (about the thickness of an ordinary-sized pin) which compose the framework of the nest."

Davidson, quoted by Barnes (Journ. Bomb. Nat. Hist. Soc. vol. vi, p. 251, 1891) says "the bird is very common in the Nassik ghats, above Egutpura, and is found in all the wooded districts of this Presidency. It conceals its nest in a thick tree, such as a mango or a mowa, so that it is in many cases quite impossible to discover it by merely examining the tree from below. The nest, a neat cup, is suspended from the side of a fork or from a succession of twigs. I have found it only at heights from twelve to twenty feet from the ground."

In Bengal the only record of its breeding is that of Beavan's nest taken in Manbhom on the 4th April. This nest is described as being "built at the fork of a bough and neatly suspended from it, like a hammock by silky fibres, which are firmly fixed to the two sprigs of the fork and also form part of the bottom and outside of the nest. The inside is lined with dry bents and hairs."

In Ceylon Wait notes that "it appears to have several broods, beginning in November and December, as soon as the rains have set in, while I have found eggs as late as May. The nest is hard to discover. It is a soft, neatly woven cup, composed of fine strips of grass, or tow-like fibre, suspended by the rim to the fork of a slender twig, and always well concealed by overhanging leaves. It is generally 6 to 10 feet from the ground but occasionally much higher. It lays two eggs."

In parts of its range in the Bombay Presidency it seems certain that it must have two broods, for Davidson took nests in March and Wilson in April, while their eggs were again taken on many occasions by Davidson in August and September. The eggs, generally two, sometimes three, are very like tiny eggs of the Oriole. The ground is pure white or white with the faintest tinge of cream, and the spots consist of small purple-black dots mixed

with a few short hair-like lines, always more numerous at the larger end and sometimes forming an indefinite ring. In a very few eggs the spots and lines are reddish-brown instead of black and, in all eggs, there are a few secondary spots and marks of inky-purple or very dark grey, nearly as dark as the primary markings.

Thirty eggs average 21.1×15.1 mm. : maxima 23.1×15.8 mm. ; minima 19.3×14.3 mm.

Mesia argenteauris.

THE SILVER-EARED MESIA.

(376) *Mesia argenteauris argenteauris* Hodgs.

THE INDIAN SILVER-EARED MESIA.

Mesia argenteauris argenteauris, Fauna B. I., Birds, 2nd ed. vol. i, p. 354.

This handsome little Babbler is exceptionally common in Assam between 3,000 and 5,000 feet, sometimes ascending a couple of thousand feet higher. From Assam it extends all along the Outer Himalayas, West to Garhwal and East to the Shan States and Siam, whilst South, in Burma, it reaches as far as, and including, the Malay States. In Sikkim Stevens says it nests from 3,000 to 7,000 feet, though it has been found as low as 1,500 feet in Winter.

It frequents evergreen forest, especially the outskirts and more open portions, but prefers scrub-jungle, bush-clad open spaces, or where the bushes have grown in deserted cultivation. It does breed in Pine forest, but not in preference to other forest, as does the Red-billed *Leiothrix* and, when it does, it chooses spots in which the Pines are mixed with other trees.

Hodgson says that in Nepal "the Silver-eared *Mesia* breeds in the lowlands of Nepal, laying in May and June. The nest is placed in a bushy tree, between two or three thin twigs, to which it is attached. It is composed of dry bamboo and other leaves, then grass and moss, and is lined inside with fine roots."

In Sikkim Gammie says of the nests: "they closely resemble those of *Leiothrix lutea* in size and structure and are similarly situated, but instead of having the egg-cavity lined with dark coloured material, all I found had light coloured linings; such was even the case with one nest I found within three or four yards of a nest of the other species."

Stevens found that it "utilized the tea bushes for nesting purposes" in Sikkim and around Darjiling where there are Tea Estates.

Personally, although I have seen hundreds of nests now of both species, I certainly could never tell one from the other unless I actually saw the bird on the nest, though I might know that in some places one or the other bird bred and not the other.

As regards the eggs of the two genera, they are equally similar, and all I can say is that, in proportion, eggs with a white ground are more often found among those of *Mesia* than among those of *Leiothrix*. Otherwise the eggs go through the same depth of ground-colour, from the palest bluish-white to a deeper clear blue, and the markings of chestnut, red-brown or brown are the same in character and distribution.

They lay four eggs, sometimes three only, and very rarely five.

Two hundred eggs average 20.9×16.1 mm.: maxima 23.4×16.0 and 22.8×17.0 mm.; minima 19.4×16.0 and 21.0×15.0 mm.

Like so many other common birds, their breeding season is very extended. The favourite months are May and June but they breed commonly from April to August, and it is possible have two broods.

Both birds assist in incubation and both birds take part in building the nests, the male actually doing part of the building as well as bringing materials. They sit pretty closely but, even if not seen leaving the nest, soon give the site away by their fussiness and demonstrations if anyone goes near it.

(377) *Minla ignotincta* Hodgs.

THE RED-TAILED MINLA.

Minla ignotincta, Fauna B. I., Birds, 2nd ed. vol. i, p. 355.

The Red-tailed Minla is found from Nepal and Sikkim to the extreme East of Assam, South to Manipur, Cachar, the Khasia Hills etc. It breeds probably up to 10,000 feet. Blanford recorded it at 9,000 feet; Stevens adds it is generally distributed up to 8,500 according to season, that it is commonly resident around Gopaldhara at 4,500 to 6,000 feet, between which limits it breeds, whilst in the cold weather it descends right down to the foot-hills. He also found them in the foot-hills of the Miri-Abor Ranges and gives an excellent little description of their haunts:—"... frequenting the forest growth wherever the sun can penetrate to patches where the surrounding rocks break up the forest and give it access." This is typical of the country it loves—wet, humid forest of great tree-growth, dripping mosses and ferns, luxurious undergrowth, broken up everywhere by narrow rocky gorges and huge boulders, which stand up ten to twenty feet among the trees, themselves covered with a growth always green and fresh—year in, year out. In similar places, but at higher elevations, it makes its nest.

The only record of its nest is that of Hodgson; fortunately this is so full and good that it would do for all:—"It breeds in the central region of Nepal and near Darjiling during May and June. It builds a beautiful, rather deep cup-shaped nest of mosses, moss-roots and some cow's hair, lined with these two latter. The nest

is placed in the fork of two or three branches of some bushy tree at no great height from the ground and is attached to one or more of the stems in which it is placed by bands of moss and fibres. A nest taken on the 24th May measured externally 3.28 inches in diameter and 2.25 in height; internally the cavity was 2 inches in diameter and 1.62 in depth.

"They lay from two to four eggs."

There is little to add to the above. Masson sent me eggs from Sikkim taken in May at about 9,000 feet and the nests are identically like that of Hodgson's.

The very few remaining nests I have seen call for no remark.

Hodgson found his nest in May, and all the others of which I have records were taken in May and June. Hodgson also says that the eggs number four in a clutch and this may be so, but I have always been most unlucky in getting full clutches. Masson found two eggs in one nest and one young and one added egg in another, and for the rest I have one set of three and odd eggs only.

They are rather pale Thrush's-egg blue in colour, sometimes rather brighter and deeper, while the markings consist of specks and tiny spots of black or reddish-brown, generally forming a well-defined ring about the larger end and sparse or absent elsewhere. The secondary marks, easily seen with a glass, are lavender or pinky-grey, distributed under the primary markings or mixed up with them. In shape they are generally fairly long ovals, the texture fine and close and the surface with a faint gloss.

They are very like the eggs of the genus *Siva*.

Twelve eggs average 19.4×14.4 mm., much the same as those taken by Hodgson: maxima 20.1×14.1 and 19.2×15.2 mm.; minima 18.6×14.2 and 19.2×12.6 mm.

(378) *Hypocolius ampelinus* Bonap.

THE GREY HYPOCOLIUS.

Hypocolius ampelinus, Fauna B. I., Birds, 2nd ed. vol. i, p. 357.

This Persian bird does not breed anywhere within our limits and has only occurred as a rare straggler into Sind, Khelat and on the Mekran coast, whilst quite recently it has been recorded from the Kolaba district, on the West coast of India, by Mr. Salim A. Ali (Journ. Bomb. Nat. Hist. Soc. vol. xxxiv, p. 1061, 1931).

Cumming gives the following description of its breeding at Fão (Journ. Bomb. Nat. Hist. Soc. vol. xii, p. 760, 1899):—"These birds arrive in Bushire in March, occasionally they are to be seen at the end of the same month at Fão, but usually in April.

"They breed in June and July; nests have rarely been taken towards the end of May. The male assists the female in building the nest and sitting on the eggs."

"The nest is completed in three to four days; one egg is laid daily until the full number is completed, *i. e.*, four or five, and about fourteen days are taken in incubating.

"Nest placed in centre of small date bush about 3 feet from the ground near the bund at back of date gardens."

Again, in the same journal (vol. xxviii, p. 270, 1922), we find this additional information :—"Concerning their habits in the breeding season, Cheesman, who found a colony at Sera on the Tigris, in scrub jungle, says the pairs often pack into a flock; on settling, their call, actions and appearances were similar to those of a Babbler and pairs often indulge in love flights, flying round 100 to 150 feet in the air. They were building in the scrub on May 1st and he found a nest in a low bush two feet from the ground in open scrub; the nest, which was being built of coarse grass-stems, was in the centre of the bush, not at all hidden, and the birds were not shy."

Cumming found all his nests on Date-palms, many of them on young and stunted palms two to five feet up, but others as much as ten feet from the ground.

The nests and sites Cumming describes (Ibis, 1886) as follows :—"The nests are generally placed on the leaves of the date palms, at no very great height. The highest I have seen was built about 10 feet from the ground, but from three to five feet is the general height.

"They are substantial and cup-shaped, having a diameter of about $3\frac{1}{2}$ inches by $2\frac{1}{2}$ inches in depth, lined with fine grass, the soft fluff from the willow when in seed, wool and sometimes hair."

At Qarradak, also, Sir Percy Cox found them breeding on Date-palms in June.

The eggs are as unique as the birds but the former may be said to resemble most nearly the eggs of *Lanius lahtora*, with the colour nearly all washed out. The ground is white and the markings consist of very faint grey blotches, rather large in size, scattered fairly thickly at the big end and decreasing in number towards the small end. One clutch given to me by Sir Percy Cox has the markings rather better defined and with a tinge of brown in them. The surface is fine, glossy and close in texture.

Thirteen eggs average 26.2×19.2 mm. : maxima 27.3×20.8 mm. ; minima 24.5×19.0 and 26.3×18.1 mm.

Family PYCNONOTIDÆ.

Genus CRINIGER.

Since the first volume of the 'Avifauna' was written a considerable amount of work has been done on this genus, and Kloss, with his fine material, has been able to prove that there are two distinct species which have hitherto been confused as one. Before writing vols. vii and viii of the 'Avifauna' I again reviewed all our races of *Criniger*, with the result given on p. 612 of vol. viii. This result was that I found that we had, within our limits, two species *Criniger gutturalis* with two subspecies and *Criniger gularis* with three subspecies, the breeding ranges overlapping in several cases for big areas.

The Key to the Species is as follows :—

- A. Lower plumage brown or ochraceous brown *C. gutturalis*, p. 333.
 B. Lower plumage yellow or ochraceous yellow *C. gularis*, p. 334.

Criniger gutturalis.

THE BROWN WHITE-THROATED BULBUL.

(379) *Criniger gutturalis ochraceus*.

THE MALAYAN BROWN WHITE-THROATED BULBUL.

Criniger tephrogenys tephrogenys, Fauna B. I., Birds, 2nd ed. vol. i, p. 362.
Criniger gutturalis ochraceus, *ibid.* vol. viii, p. 612.

As this bird was described by Moore from a Tenasserim bird, its trivial name would have been better if given as "The Tenasserim" rather than "The Malayan." However, as it is only found in the South of Siam and Tenasserim and, apparently, all through the Malay States, I forbear to change the name more than necessary.

There is nothing on record about the nidification of this Bulbul, but it will probably be found to be much like that of the comparatively well-known Indian White-throated Bulbul, very fully described further on. It is a bird of the hottest and most humid evergreen forest, haunting the valleys, low broken hill country and the adjacent plains, especially those forests where there is much green undergrowth. How far up the hills it ascends I do not know but, probably, not more than about 2,000 feet; further information is, however, wanted on this point.

The only known nests, with eggs, are four taken by Kellow near Simpang (1906), Taiping and Perak (1910). "Near" apparently means within 20 miles.

The nests are described as "very massive, strongly but loosely built cups of dead leaves, twigs, roots and weed-stems, bound

together with longer roots and stems and lined with coarse roots and tendrils." All were placed low down in thick bushes or tangles of creepers in evergreen forest on the banks of streams. One of the parent birds and a nest were sent to me with the series of eggs.

The nest sent to me has a thick lining of bamboo-leaves between the walls of the nest and the true lining. There is also a little moss, probably green when used, fastened into the walls of the nest.

The nests were taken between the 11th of March and the 3rd of May, but some found early in March were too hard set to blow.

The eggs, like all other eggs of this genus, are extremely beautiful. The ground-colour of the small series referred to above varies but slightly from a rosy pink to a deeper rosy with a tinge of carmine. The markings of the darkest clutch consist of broad scrawls, small and big irregular blotches, some of which look as if they had run, and spots of deep purple-red or reddish-black. Similar marks of brick-red underlie these, whilst deeper still there are faint spots and blotches of lavender and violet showing through the rosy ground-colour. At the larger end all the markings are numerous and occasionally form indefinite caps or rings; elsewhere they are less numerous, though nowhere scanty. The palest clutch has far fewer markings, especially of the darker kinds but, on the other hand, has far more pale reddish smears and blotches, which only show up well under a good glass. The two other clutches are intermediate, though one has the markings very blurred and distributed equally over the whole egg.

The texture is very fine and intensely glossy, far more so than in the eggs of any other genus of Bulbul I know of; the shell, also, is stouter in comparison with its size.

Eleven eggs average 25.2×18.5 mm.: maxima 27.0×19.6 mm.; minima 23.9×18.6 and 24.1×17.3 mm.

Criniger gularis.

THE YELLOW WHITE-THROATED BULBUL.

(380) *Criniger gularis flaveolus* (Gould).

THE INDIAN YELLOW WHITE-THROATED BULBUL.

Criniger tephrogenys flaveolus, Fauna B. I., Birds, 2nd ed. vol. i, p. 363.
Criniger gularis flaveolus, ibid. vol. viii, p. 612.

This fine Bulbul has been recorded from as far West as Garhwal, where, however, it must be very rare; it occurs in Nepal, Sikkim and the whole of the outer ranges of the Himalayas as far East as Assam, Manipur and Tippera. In the Assam Hills we found it breeding most commonly between 1,000 and 2,500 feet, but it certainly nests occasionally up to nearly 5,000 feet, as I took one nest myself at 4,600 feet. Mandelli took many nests up to 4,000 feet in Sikkim, though Stevens estimates its highest limits

at 1,500 feet, and speaks of it as "strictly a plains bird." Again, he records it as occurring plentifully throughout the Plains in forest in North Lakhimpur, whilst Hole and Inglis got it in the foot-hills in Cachar.

Mandelli's nests were all "placed in branches of small trees in the midst of dense brushwood or heavy jungle, at heights of from 4 to 10 feet from the ground. The nests are broad and saucer-like, nearly 5 inches in diameter, but not much above 2 in height externally; the cavities average about 3.25 in diameter and about 1 in depth. The body of the nest is composed of dead leaves, the sides are more or less felted round with rich brown fibrous, almost wool-like roots; inside the leaves fine twigs and stems of herbaceous plants, all of a uniform brown tint, are wound round and round, apparently to keep the leaves in their places interiorly; and then the cavity is lined with jet-black horsehair-like vegetable fibres."

Although doubted by Hume, Mandelli's nests and eggs were of course correctly identified, but the nests differ in some respects from those found by myself. My description (Journ. Bomb. Nat. Hist. Soc. 1892, p. 4) is as follows:—"The outside of the nest is composed of dead leaves and bamboo spathes rather strongly fastened together with a few hair-like fern-roots and a number of elastic stems of weeds; inside the outer shell, which can be stripped off without damaging the remainder of the nest, there are a few more dead leaves very strongly bound together by innumerable fern-roots, all of the finest description, and, also, all black; so firm is this part of the nest that, if the outer part and the lining be taken away, a strong and perfect cup remains, capable of withstanding considerable force. The true lining is composed entirely of coarse fern-roots, very rarely of fine twigs (as thick as pins). These three portions of the nest as a rule show three distinct shades of colour; the outermost part, in the material of which dead leaves predominate, is of a yellow or light reddish; the fine fern-roots cause the central part to appear of a dead, dull black; whilst the innermost part is nearly always of a dark reddish-brown."

My measurements of nests agree well with those of Mandelli, but the situations selected in Assam differ rather from those chosen in Sikkim. I suppose I have now seen some scores of nests *in situ*, yet I have never taken them from small trees at ten feet from the ground. Most nests are built in among masses of weeds, brambles and similar cover in a small bush or tangle of vines and weeds anything between a few inches to two or three feet from the ground. Exceptionally they may be four feet and, I think, I have seen one about five feet up in a cane-brake in ground which was practically a swamp. Cane-brakes close to a stream running through a really tropical evergreen forest, where everything is always wet, seems to be a very favourite situation for the nest. So, also, is the rank vegetation growing about palm-ferns in similar humid

spots. Everything round may be reeking and the base and loose outer leaves of the nest quite soaked, yet the inner part keeps dry and smug.

Another point about this bird's nest is the clever way the pliant weed-stems are wound round the supporting twigs in and out of the other materials, so that at one and the same time they keep all the loose leaves of the nest together and keep the nest itself firmly attached to its supports.

In the Cold Weather, when these Bulbuls consort in noisy flocks, they may sometimes be seen in bamboo-jungle and secondary growth, but I have never found them breeding in such cover. The breeding season is principally May and June but I have eggs taken on the 24th April and again as late as the 24th July. I do not think they are double brooded.

Both birds take part in incubation, for I have caught both sexes repeatedly on the nest and eggs. I believe, also, but am not quite sure, that both male and female help in the construction of the nest.

Incubation probably takes thirteen days.

The eggs number three or four, one number as often as the other; sometimes two only are laid but, in these cases, Jays, Magpies or Lizards probably account for the shortage. An interesting question in regard to these birds, which breed in these soaking positions in humid forests, is in regard to leeches. In the Rains these are so numerous that men walking along the rain-sodden paths have to stop at intervals to scrape the leeches off their legs. Small mammals are sometimes killed and even the bigger ones suffer by exhaustion from them. One small leech could kill a nestling in a few seconds yet I have never found a trace of such an event having happened. Why is this so?

The eggs are certainly the most beautiful of all the eggs of Bulbuls. The principal types are the same as those I have already described for the preceding members of the genus. Other types are the following:—Ground-colour carmine-pink, the blotches and hieroglyphics being a deep blood-red or purple red, with others underlying of dark lavender or purple-grey. Many of these are collected in rings round the larger end but are numerous elsewhere also. Another type has the ground a vivid rose-pink with primary markings of pinkish brick-red and others of light red splashed freely over the whole surface but coalescing to form caps or rings at the larger end.

Another type—and this approaches a rather abnormal type of *Microscelis* egg—has the ground-colour a pale, slightly yellow-cream, whilst the blotches are very large, some being deep blood-red, some a deep purple and a few a rich red-brown.

Individual eggs often have a single long line, twisted or straight, covering nearly the whole of its length or circumference.

A few eggs are pale, both in ground-colour and markings, except for one or two conspicuous blood-red or nearly black spots.

As already stated, the texture of these, and of all other eggs of the genus, is very fine, close and hard, with an intense gloss not approached in the eggs of any other Bulbul. They are also very hard shells, not easily broken.

Sixty eggs average 26.9×18.6 mm.; maxima 27.5×18.6 and 26.1×20.0 mm.; minima 23.3×18.3 and 24.8×18.0 mm.

(381) *Criniger gularis burmanicus* Oates.

THE BURMESE YELLOW WHITE-THROATED BULBUL.

Criniger tephrogenys burmanicus, Fauna B. I., Birds, 2nd ed. vol. i, p. 364.
Criniger gularis burmanicus, ibid. vol. viii, p. 612.

The range of this Bulbul is practically the whole of Upper Burma from the Chindwin and all the country West of the Salwin from Yamethin to Moulmein. In the South the Sittoung River seems to be the dividing line between this bird and *griseiceps*, but its Northern limits still require further working out. So far as is recorded, this bird's haunts are very similar to those of other Bulbuls of the same genus. Oates ('Birds of Burma,' vol. i, p. 184) says:—"It is abundant on the eastern slopes of the Pegu Hills, extending right down to the towns of Rangoon and Pegu. On the Western slopes, where the vegetation is dry, it is probably altogether absent."

A collector obtained two nests of this Bulbul near Moulmein containing three and four eggs. The nests he describes as "wet, untidy cups of all sorts of rotten leaves etc., lined with black roots and placed low down in thick bushes in evergreen forest. Both were taken on the banks of streams at the foot of the hills."

The nests sent answer the description well, but the linings seem, as with the preceding bird's nest, to have been very compactly made and quite dry.

Hopwood also sent me two nests of this Bulbul, each containing two eggs, one taken in the Tounghoo district at the foot of the Pegu Yomas on the 19th May and the other in the Lower Chindwin on the 29th April. These birds were breeding on the East of the Sittoung and are, presumably, of this race, whilst another nest taken on the West of this river, and actually in Pegu, would be *griseiceps*. All three might, however, prove to belong to either race.

The breeding season would seem to be March to May, as both the nests taken near Moulmein were taken in March.

The eggs seem to number two or three only in a clutch. In appearance they are indistinguishable from those of the Indian bird.

The average of eleven eggs is 24.5×17.8 mm.; maxima 26.1×18.3 and 25.0×19.0 mm.; minima 23.0×17.0 mm.

(382) *Criniger gularis griseiceps* Hume.

THE PEGU WHITE-THROATED BULBUL.

Criniger tephrogenys griseiceps, Fauna B. I., Birds, 2nd ed. vol. i, p. 365.
Criniger gularis griseiceps, *ibid.* vol. viii, p. 612.

The distribution of this bird has not yet been well worked out. Hume named it from specimens obtained by Oates in Upper Pegu and it is undoubtedly the form which is found and breeds throughout the whole of Pegu Yomas West of the Sittoung. Its status in Tenasserim, except in the extreme North-West corner, is, however, doubtful, and one would expect the Eastern form (*burmanicus*), if any, to be found in Tenasserim East of the Sittoung.

Oates says: "This bird occurs in the evergreen forests in large numbers. In April the birds were breeding, though I failed to find the nest."

The only nest with eggs known is one taken by Hopwood in the Pegu Yomas on the 2nd of May containing three eggs, almost hatching, and one proving quite unblowable. The nest, according to him, was made of twigs and lined with bamboo-leaves and was placed in the fork of a sapling in evergreen forest about five feet from the ground.

The two eggs are, of course, quite typical *Criniger's* and are of the rose-pink type, covered all over with light red blotches, fairly thick everywhere and forming little caps at the extreme big end.

The two eggs measure 25.5×18.2 and 24.2×18.7 mm.

Microscelis psaroides.

THE BLACK BULBUL.

(386) *Microscelis psaroides psaroides* Vigors.

THE HIMALAYAN BLACK BULBUL.

Microscelis psaroides psaroides, Fauna B. I., Birds, 2nd ed. vol. i, p. 369.

The Himalayan Black Bulbul is resident and breeds on all the outer ranges of the Himalayas from Afghanistan to Bhutan. Its limits East of Bhutan are not known, but either the Dihong or Dibong River will probably prove to be its Eastern boundary, as birds in Lakhimpur are of the next race, as also was a specimen obtained by Dr. Falkiner in the Abor Hills. In elevation it may be found at any height between 2,000 and 7,000 feet, but it seldom nests under 3,000 feet. In Murree Rattray, Marshall and others obtained it breeding freely up to 6,000 feet. Brooks took a nest at Ayarpata, Naini Tal, over 7,000 feet, whilst Rattray also took one on Nangthar at about the same elevation. In Sikkim it ascends far higher; Stevens records it up to 10,000 feet at Tonglo in January, so, presumably, it also breeds at this height in Summer.

They are forest Bulbuls frequenting and breeding in lofty trees. Preferably they like rather open forests, but are found also well into the interior of very dense ones.

The best description of the nest is that given by Hutton and quoted by Hume:—"They breed during April, May and June, making a rather neat cup-shaped nest, which is usually placed in the bifurcation of a fork of a horizontal branch of some tall tree; the bottom of it is composed of thin dead leaves and dried grasses, and the sides of fine woody stalks of plants, such as those used by the White-checked Bulbul, and they are well plastered over externally with spiders' webs; the lining is sometimes of very fine tendrils, at other times of dried grasses, fibrous lichen and thin shavings of the bark of trees left by the wood-cutters. I have one nest, however, which is externally formed of green moss with a few dry stalks, and the spiders' webs, instead of being plastered all over the outside, are merely used to bind the nest to the small branches among which it is placed. The lining is of bark-shavings, dry grasses, black fibrous lichens and a few fine reed-stalks of grasses. The internal diameter of the nest is $2\frac{1}{4}$ inches and it is $1\frac{1}{2}$ inches deep."

In regard to the measurements, Hume notes that the nests sent to him have had sides varying in thickness from one to two inches, whilst the bottom is seldom more than $\frac{1}{2}$ to $\frac{3}{4}$ an inch thick.

Most nests agree with the above description, though the amount of the various materials differs greatly. In some nests green moss is used almost to the exclusion of anything else, whilst in others there is hardly any. The use of lichen varies to almost the same extent. In many nests fine elastic twigs are used in some numbers, in other nests none at all. Leaves, however, always seem to be required, while to bind these together stalks of weeds are almost invariably employed. Two rather exceptional nests mentioned by Hodgson, taken in Nepal, were "made of moss and dry fern and dry elastic twig-tops and lined with long elastic needles of *Pinus longifolia*."

The nests are often placed at very great heights in forest trees, but the situations vary greatly. Gammie records a nest built 50 feet from the ground, whilst Marshall took one "in a bush on the outskirts of a forest on a steep bank and about eight feet from the ground." These probably form the two extremes, and most nests will be taken from outer branches of trees at heights from the ground between 25 and 35 feet.

The breeding season proper is during May, June and early July, but some birds breed in the latter half of April whilst others breed much later, Rattray taking a nest at Murree on the 26th September.

Hume says that four is the normal number of eggs but that he has more than once found three incubated eggs in a nest. Later observers—Dodsworth, Jones, Whympers, Rattray and others—

all consider three to be the normal number and four to be exceptional. Even clutches of two eggs only seem to be not very uncommon, for I have had many such clutches sent me said to have shown signs of incubation.

Hume's description of the two main types of eggs is as follows :—
 "There seem to be two leading types, with, however, almost every possible intermediate variety of markings. The one is thickly speckled over its whole surface with minute dots of reddish purple, no dot much bigger than the point of a pin, and no portion of the ground-colour more than 0.1 in diameter free from spots. In these eggs the specklings are most dense, as a rule, throughout a broad zone surrounding the large end, and this zone is thickly underlaid with irregular ill-defined streaky clouds of dull inky purple. In some eggs of this type the smaller end is comparatively free from spots. In the other type the surface of the egg is somewhat sparingly, but boldly, blotched and splashed, first with deep umber, chocolate, or purple-brown and, secondly, with spots and clouds of faint inky purple."

Although I have had immense series of eggs through my hands, I have seen very few of the first type, and the most common one seems to be an egg with a very faint pink ground covered all over with small primary blotches of deep red-brown, chocolate-brown or purple-brown, with similar secondary small blotches of lavender and inky-grey.

Unusual clutches generally fall under the following headings :—
 (1) pale salmon ground with normally distributed chestnut primary and grey secondary blotches—these eggs are like very feebly-coloured eggs of *Criniger*; (2) a white ground with bold richly-coloured chocolate blotches, with inky-grey secondary blotches showing up among them; and (3) a pale salmon ground with large bold blotches of purple-brown and lavender-grey scattered freely over the whole surface. This third type, like the first, is not unlike some aberrant eggs of *Criniger*.

The average of sixty-two eggs is 26.2×19.1 mm.: maxima 29.1×18.2 and 28.2×20.0 mm.; minima 23.8×18.7 and 25.2×18.1 mm.

(387) *Microscelis psaroides nigrescens* Stuart Baker.

THE ASSAM BLACK BULBUL.

Microscelis psaroides nigrescens, Fauna B. I., Birds, 2nd ed. vol. i, p. 371.

This dark form of Black Bulbul is very common in all the hill-ranges of Assam South of the Brahmapootra and East of the Dibong, occurring in the Abor and Miri Hills North of the Brahmapootra. East it occurs throughout the Northern Chin Hills to the Chindwir, which seems to form its Eastern boundary. It may be found at all elevations in Winter between the foot-hills and their

adjacent plains up to 7,000 feet. It breeds freely in and round about Margherita, roughly 700 to 1,200 feet above sea-level, but in the Surrma Valley hills, Manipur and Chin Hills it does not breed below 2,500 feet and seldom below 3,000; at the same time I have taken a nest at about 5,800 feet on the Barail Range in Cachar.

Over the greater part of its range it is a forest breeder, selecting trees of considerable size in which to place its nest just as the preceding bird does, and in similar situations. I have, however, on several occasions taken nests from high straggling bushes and from small saplings. This was especially the case in one part of North Cachar. Here I found the bird breeding on the precipitous hills surrounding the upper part of the Laisung Valley. These hills, owing, perhaps, to their great steepness, have but little soil on them, except that which is washed by the rains into deep crevices or on to the numerous narrow ledges. In such places a considerable amount of scrub-jungle grows, interspersed with numerous stunted trees, which seem to die early, for almost two out of every three are more or less dead and rotted. It was on these dead trees that the Black Bulbuls had selected sites for their nests; nor were the branches selected at the tops or outsides of these trees, such as would be normally used, but the nests were placed in the first bifurcation of the main trunk about 15 feet from the ground. This was a favourite ground for many kinds of Bulbuls, although it was a most desolate kind of place. Looking at it from the grand trees and dense green forests of the hills opposite, the half-clad precipice looked as if some blight had been cast upon it. Probably the rotten trees, the open sunlight, with abundance of food, and freedom from ground-vermin more than compensated the birds for the thin cover and poor view.

The nests are similar to those made by the Himalayan Black Bulbul but I think moss is used generally and more freely in the Assam birds' nests. Most nests were usually more or less completely covered on the outside with moss, and I cannot remember many which had none. Bamboo-leaves were often used between the inner and outer walls of the nests I pulled to pieces and, when there were no bamboo-leaves handy, the birds substituted dry bracken and dead fern-leaves.

2 The breeding season is May and June and I have taken eggs in April and July.

Both birds take part in incubation, as both were frequently caught by the Nagas on their nests, but I cannot say if both sexes assist in building the nest.

The normal full clutch of eggs is three, four only occasionally and two quite frequently.

They are not distinguishable from the eggs of any other *Microscelis*, but I have taken a few varieties not represented in my series of the other species. One very fine clutch of three has the ground

white with the greater part of the surface smeared and heavily blotched with deep purple-brown, this colour covering the greater part of the large end and middle of the egg but less thickly laid on at the small end. Another beautiful clutch of three has the ground-colour a very pale rosy pink; two of the eggs are spotted with purple-brown and lavender, principally at the larger end, with most of the spots in an ill-defined ring; the third egg has great blotches of red-brown at the big end and only a few freckles of the same colour at the small end.

In texture the eggs are rather coarse and not very close grained, the surface having no gloss. In shape they vary from rather long ovals to decidedly broad blunt ovals.

Sixty-four eggs average 27.1×19.9 mm. : maxima 29.6×19.2 mm. and 29.0×20.5 mm. ; minima 24.7×19.3 and 25.8×18.0 mm.

(388) *Microscelis psaroides concolor* (Blyth).

THE BURMESE BLACK BULBUL.

Microscelis psaroides concolor, Fauna B. I., Birds, 2nd ed. vol. i, p. 372.

This race of Black Bulbul is found over the greater part of Burma South of the Chin Hills and on the North-East of the Irrawaddy. South it extends as far as Muleyit Mountain, in Tenasserim. I cannot separate Anderson's *yunnanensis* from the Burmese bird, so Yunnan and the Shan States must be included within its range.

Davison says ('Stray Feathers,' vol. vi, p. 295) that the habits of this Bulbul are just the same as those of *ganeesa* and *psaroides*, but that "it is most commonly seen at the 'Sarkans' or hill camping grounds, small open clearings surrounded by forest and with a few trees standing about them.

"They are confined to the more open hill forests of the Northern and more central portions of the province, but not ascending to the summits of the highest hills." Harington, however, found them breeding at 5,500 feet near Sinlum Kaba, in the Bhamo Hills, and Robinson took them on the Taok Plateau at 4,000 feet in Tenasserim. Their breeding-range elevations are probably about 2,000 to 7,000 feet, and Bingham says that it never descends to the Plains.

Harington, Venning, Mackenzie and others have all taken the nests of this Bulbul in various parts of Burma, but all say that the nests and nesting habits are precisely similar to those already recorded for the two previous races. Hopwood and Mackenzie found them breeding in evergreen forest of big trees, placing their nests often at great heights from the ground. Harington found them breeding equally freely in more open ground or forest in the Bhamo Hills, whilst Robinson seems to have taken the nest in open well-wooded country on the Taok Plateau.

The breeding season appears to be May and June, but Harington took one nest with three eggs at Bharno on the 13th March.

The number of eggs laid seems to be two or three only, frequently the former. They are in every respect like those of the Assam Black Bulbul but, as a series, are not so richly coloured. There is also not nearly so much variety among the types, all being of the commonest types of the other subspecies. On the other hand, comparatively few eggs have been taken of this bird, and a larger series would probably contain just as many varieties as the others.

In shape most of the eggs are rather long ovals, a few only being rather broad ones.

Eighteen eggs average 26.8×18.9 mm.: maxima 28.3×19.2 and 27.6×20.0 mm.; minima 24.8×18.9 and 26.0×18.0 mm.

(389) *Microscelis psaroides ganeesa* (Sykes).

THE SOUTHERN INDIAN BLACK BULBUL.

Microscelis psaroides ganeesa, Fauna B. I., Birds, 2nd ed. vol. i, p. 372.

This Black Bulbul is found in all the hill-ranges of Southern India South of Matheran. McMaster also obtained it at Chikaldar in the Garwilgarh Hills in Berar. It is also found over all the hills of Ceylon. In the Nilgiris they are found up to 8,000 feet, and probably everywhere ascend to the summits of the highest hills in each range.

As regards Ceylon, Wait writes ('Birds of Ceylon,' p. 55):—"Common in the well-wooded parts of the low country damp zone and in the hills, but rarely met with in the dry forest tracts. It appears to visit the highest elevations in the dry weather. The breeding season is from January to about April. The nest is a rather untidy cup of dead leaves; roots and moss placed in a fork of a branch, generally at some height from the ground. There are usually only two eggs." In addition to the months for breeding mentioned by Wait, Phillips has taken fresh eggs in May, August and September. Like so many Ceylon birds, these Bulbuls probably have a very erratic breeding season.

In Travancore Stewart found them breeding principally in April and May, between 4,000 and 6,000 feet in dense forest.

In the Nilgiris they breed from May to June (Davison); March (Carter); March to June (Wait and Darling).

In Coorg they breed in May (Bates) and in the Neliampatty Hills April and May (Kinloch).

The nest is just like that of the Himalayan bird and is placed, usually at great heights from the ground, according to Rhodes Morgan sometimes as much as 60 feet from the ground. Sometimes, however, it builds much lower down. Bates in his interesting book, 'Bird Life in India,' writes:—"Of the Black Bulbul's nests one,

found on May 8th, was in a decidedly unusual position, being barely five feet from the ground in a thickish bush close to a forest side. The other, taken on the 6th, was in a more normal position, resting in a fork in a horizontal branch of a small forest tree in a clump at the edge of the Race Course. Even this was rather low down, as it was certainly not more than 15 feet up."

Bates's beautiful photographs of this bird's nests would seem to show that on the whole they are more untidily built and less compact than the nests of our Northern birds, though they are very similar in other respects.

The eggs almost invariably number two only and none of Hume's correspondents appear to have found more. On the other hand, I have had more than one record of single eggs being incubated.

The eggs are generally described as being like those of the other members of this genus and, to some extent, this is correct. As a series, however, they differ in being much less boldly and handsomely marked. The most common type is a white, or almost white, egg speckled, not very densely, with red-brown or purple-brown spots of no size. Blotched eggs are quite exceptional, as are eggs with a pinkish ground-colour.

As a series, too, the eggs are shorter, broader and with more obtuse small ends.

Forty-five eggs average 26.6×19.6 mm.: maxima 29.0×19.4 and 27.0×20.0 mm.; minima 23.8×18.5 and 24.2×17.6 mm., whilst one very small egg measures only 23.8×18.5 mm.

(390) *Cerasophila thompsoni* Bingham.

THE BURMESE WHITE-HEADED BULBUL.

Cerasophila thompsoni, Fauna B. I., Birds, 2nd ed. vol. i, p. 373.

This remarkable Bulbul is an inhabitant of the hills of the Southern Shan States, East Central Burma and Western Siam. Wickham found it not uncommon in Taung-gyi and Mackenzie and Wickham took several nests at Thandoung in the Karen Hills. It breeds, apparently, between 4,500 and 6,000 feet or higher.

It is only very recently that the breeding of this bird has been discovered, and this only a year or two after the bird itself had been found to occur within our limits.

The first nest taken is recorded in the Journ. Bomb. Nat. Hist. Soc. (vol. xxx, p. 223, 1925) by P. F. Wickham:—

"Mr. F. S. Grose, of the Burma Frontier Service, found the nest on the Taunggyi Hill, Southern Shan States, on the 28th April this year (1924). The birds were not so numerous at this time as in the Winter months and, while nesting on the hill both before and after this date, only one or two had been seen.

"The elevation of the nest site is about 4,800 feet.

"The nest, a fairly neat cup, built practically on the ground, but attached to the stems of a plant, was of coarse grass, lined with fine grass and was situated on a steep slope just below a path on each side of which the grass and light scrub had been cut back.

"The nest was, therefore, in an exposed situation and in a somewhat abnormal and unexpected site. Its inside diameter was about 80 mm.; the eggs, three in number, slightly incubated, by no means glossy, were typical Bulbul's eggs, the grey markings amongst the red being perhaps more numerous than usual; one egg was more boldly marked than the others; their average measurement is 23.0×16.8 mm."

In 1929 Mackenzie took further nests in Thandoung (*ibid. supra*, vol. xxxiii, p. 991), which he describes as follows:—"Last year I failed to get a nest, but this year I found one on April 8th containing three fresh eggs. I saw the bird return to the nest and identified it, but could not get a shot, so left my man to secure it. He put it off the nest when he went back from where he had been waiting and subsequently shot it.

"The nest was a surprise. It was placed in a hole in a bank (a cutting for a path) about 3' above the path and consisted of small bright yellow grass seed-stems, or rachæ of *Paung* (*Saccharum arundinaceum*), from which the seed had all been stripped off, and a very few pieces of larger grass and bamboo leaves across the outer lip. It was rather a flimsy affair, and came to pieces soon after being taken out. A shallow cup, say $3\frac{1}{2}'' \times 1\frac{1}{2}''$, with no trace of a dome.

"The eggs were of the ordinary, fairly bright-coloured Bulbul type.

"I wrote the above on April 15th and, since then, I have found four more nests. One contained two young, one a clutch of three eggs and one a clutch of four. In the two nests mentioned the eggs were too hard to blow.

"All the nests were in banks; . . . they were all similar in construction to the first nest I took."

The first clutch of three and two single eggs from Mackenzie are now in my collection. The three are eggs with a pink ground densely speckled with light red, this colour darkening to deep red at the larger end, where the spots coalesce to form caps. These eggs are almost glossless.

The odd eggs saved from the other two clutches are much the same but are highly glossed, although so far incubated, but the markings form rings instead of caps.

The texture is fine and close but apparently fragile, whilst the shape is an ordinary rather broad oval.

The average of eight eggs is 22.45×16.65 mm.: maxima 23.1×17.2 mm.; minima 22.0×16.2 mm.

All Mackenzie's eggs were taken in April.

***Ixos flavala*.**

THE BROWN-EARED BULBUL.

(391) *Ixos flavala flavala* (Hodgs.).

THE HIMALAYAN BROWN-EARED BULBUL.

Hemixus flavala flavala, Fauna B. I., Birds, 2nd ed. vol. i, p. 374.

Ixos flavala flavala, *ibid.* vol. viii, p. 613.

The range of this Bulbul extends from Mussoorie in the Western Himalayas to extreme Eastern Assam, both North and South of the Brahmapootra; in the North-East it extends to the Northern Chin Hills, Kachin Hills and Yunnan; South it works through Manipur, the Lushai Hills and South Chin Hills to the Arrakan Yomas.

The first nests to be taken of this Bulbul were those taken in North Cachar by myself in 1886; here they were breeding from 2,300 feet (once only) up to the highest peaks of the Barail Range, about 6,200 feet, and again much higher in the Naga Hills, probably up to 8,000 feet. In the Khasia Hills also they bred from 3,500 to 6,200 feet. In Sikkim Stevens records it as occurring in the Rangbong Valley up to 5,000 feet; further West Whympier took its nest at about 4,000 feet in Naini Tal, whilst in the extreme West, Mussoorie, Rattray saw the bird and got one nest at about 5,000 feet. It seems, however, to be a rare bird anywhere West of Sikkim, and is most common in the highest hills South of the Brahmapootra.

It is a resident, non-migratory bird but, during the breeding season, deserts the lowest levels and ascends to the highest.

It is a forest bird and nests in forest, but it prefers breaks in the heavier forest rather than the deepest parts. In 1892 I described its haunts as follows:—"The bird is fairly common throughout the district (Cachar), descending in the Cold Weather far into the plains and ascending to the highest peaks in the Hot Weather and Rains. In the former season, during which time it assembles in flocks, it frequents fairly open country, roadsides and the edges of patches of cultivated land. It keeps exclusively neither to high trees nor to low bushes, visiting either one or the other as the chances of obtaining food present themselves. About the middle or end of April they ascend to higher elevations, where they remain during the breeding season. At this time much less is seen of the birds, as they withdraw to deeper forest, keeping in great measure to nullahs and ravines, more especially to those which have water running through them.

"The nest is a rather deep cup composed outwardly of grass-stems and dead leaves and lined with coarse grass-stems.

"The general appearance of the nest is bright tan brown and it looks as if made of 'kus-kus' or some similar material.

Occasionally the whole nest is constructed of grass-stems, but at other times a good many bamboo-leaves are used as well as coarse grasses and a few fine twigs and, in one nest, I also found a few fern-roots and a scrap or two of moss. It is a very compact strongly-built nest; externally they average about $3\cdot5'' \times 2\cdot5''$ and inwardly the diameter is about $3''$ or rather less and the depth from $1\cdot6''$ to $2''$. The nest is almost invariably placed close to the ground and never, to my knowledge, above 5 feet. Most of my nests were taken from wild lemon trees growing at a place over 6,000 feet high, but I have found one nest below 2,300 feet and seen many birds at about that elevation during the breeding season. All the nests were taken from scrub jungle with one exception, and that one was found almost on the ground by a hill path passing through forest. This last nest was very beautifully hidden in an overhanging bunch of creepers, being half supported by them and half by a bunch of coarse grass. I should never have found it but for the assistance of the parent birds, who kept hovering about and swearing loudly whenever I approached too close."

That description was written before I had visited the Khasia Hills. Here I found them breeding in ravines in Pine forest; in these ravines there are always bushes and a few saplings and trees of kinds other than Pine-trees. Generally the nests themselves were just like those already described, but they were sometimes placed in tall straggling bushes or even in stunted Oaks and small saplings, as high up as 8 feet in one case, and 6 and 5 feet in others.

Whymer took five nests of this Bulbul in Naini Tal. Of these he writes (Journ. Bomb. Nat. Hist. Soc. vol. xiv, p. 625, 1903):—"This Bulbul seems to come up to 4,500 ft. to breed. The nests were of the ordinary Bulbul type but slung like an Oriole's, though of course a very much flimsier structure; one nest was placed only 8 feet up in a bramble bush but the others were from twenty to forty feet up on large trees

The breeding season is May and June.

Both birds take part in incubation, as we have snared both sexes sitting on the eggs. The male also takes an interest in the building of the nest and fetches materials for the hen, but I am not sure that he does any of the actual building—probably he does.

Incubation takes about thirteen days, perhaps fourteen in some instances.

The eggs number two or three, and one of the first clutches I found was a four.

The most common type has the ground-colour a very pale creamy tint, the whole surface covered with numerous speckles of bright, but light, brick-red; these are no more numerous at the large end than elsewhere. With a good glass underlying freckles of grey may be seen, but they are not numerous or strong enough to affect the general tone.

From this type the colour ranges up to deep red-brown through ordinary reddish-brown, pale or deep purple-brown. In all the character of the markings is the same and I have no eggs which show any signs of caps or rings at the larger end. In fact the small, universally distributed freckles seem to be exceptionally characteristic of this bird's eggs. Abnormal clutches are few but I have one or two in which one egg is of the most common type, whilst the other is a rather livid pale purply pink with a few specks and spots of purple-red at the larger end. Another pair is a uniform deep red-brown, the freckles hardly showing at all, but in one egg there is a pale band round the smaller end. The texture is fairly fine and close—for a Bulbul's egg—but is only very faintly glossy, whilst the shell has the usual brittleness of the eggs of this family.

In shape they are short to rather long ovals, a few eggs being definitely pointed at the small end. A few exceptionally large eggs are difficult to distinguish from some types of the *mcclellandi*, or Rufous-bellied Bulbul, group.

One hundred eggs average 24.3×17.3 mm.: maxima 27.0×19.0 mm.; minima 22.0×17.4 and 24.6×15.1 mm.

(393) *Ixos flavala hildebrandi* Hume.

THE KACHIN HILLS BROWN-EARED BULBUL.

Hemixus flavala hildebrandi, Fauna B. I., Birds, 2nd ed. vol. i, p. 376.

Ixos flavala hildebrandi, ibid. vol. viii, p. 613.

This race is, so far as is known at present, confined to the Eastern Burmese Hills from the Salwin to the Karen Hills.

Pershouse records the nesting of this Bulbul, under the name *Hemixus holli*, in Sinlum Kaba (Journ. Bomb. Nat. Hist. Soc. vol. xxiv, p. 592, 1913):—"At Sinlum, on the 8th of May, 1913, I found a nest of this species. The nest, a very flimsy structure, cup-shaped, was entirely made of bamboo leaves held together by long thin pieces of moss and cobwebs, and lined with a little grass. It was suspended cradle-like, after the manner of Orioles' nests, between some stems of dead bracken about 3' from the ground. The inside measurements were: diameter $2\frac{3}{8}$ ", depth 1". It contained two eggs in a fairly advanced stage of incubation. In colour and marking they were alike, having a whitish ground-colour, profusely speckled all over with reddish-brown spots. There appeared to be no attempt made to conceal the nest, excepting that the small clearing it was in, consisting chiefly of dead brambles and bracken, was surrounded by very thick jungle.

Nothing else is recorded about its nidification, but I have had three eggs sent me as of this bird taken from "a typical Bulbul's nest placed in a low bush." They were obtained in the Karen Hills on 7th May, 1904. *

The three eggs may be matched by dozens of eggs of *Molpastes* and *Otocompsa*. They have a dead white ground and have numerous small blotches and spots of deep purple-red, densely distributed at the larger end and getting sparse towards the small end. Underlying these are blotches and smears of lavender and inky grey showing up well through the other markings.

In shape the eggs are short, broad ovals. The texture is similar to the eggs of *Otocompsa* and there is no gloss.

They measure 22.1×17.0 , 22.2×17.0 and 22.6×17.0 mm.

They are in no way typical of *Ixos* eggs and it is just possible there was some mistake in the identification of the bird, or the bird identified may not have been the real owner of the nest.

(394) *Ixos maclellandi maclellandi* (Horsf.).

THE HIMALAYAN RUFOUS-BELLIED BULBUL.

Hemixus maclellandi maclellandi, Fauna B. I., Birds, 2nd ed. vol. i, p. 377.

Ixos maclellandi maclellandi, *ibid.* vol. viii, p. 613.

This fine Bulbul has much the same range as *Ixos flavala flavala*, though it does not extend East beyond the Chin Hills and Arrakan. Its breeding elevation is from about 3,000 up to 7,000 feet. Stevens says that in the Rangbong Valley, Sikkim, it is common from 3,400 to 6,000 feet, though it probably ascends a good deal higher.

Hodgson and Scully both found it nesting in Central Nepal down "nearly to the Terai," but they do not say how high it ascends. Rattray took its nest at Mussoorie and Nangtba at about 5,000 and 7,500 feet. In Assam they breed from about 3,000 feet up to at least 7,000 feet.

This species keeps to the outskirts of forest and will not be found far in their interior. Its favourite resort is scattered trees, with an undergrowth of grass, not bush. I have also seen it in thin scrub-jungle, in cultivation *jhums* (clearings) and very often in the jungle in ravines which are surrounded by open country.

In the Khasia Hills they frequent and breed in the more open Pine forests but, like most other birds of the Pine-woods, build in other kinds of trees growing in ravines and alongside streams and open spaces.

In Nepal, also, Hodgson says that "it is generally found in bushes and bush-trees and not in high tree forest."

The nests taken by Hodgson and Scully in Nepal seem to have been exactly like those taken by myself in North Cachar and which I described in vol. viii of the 'Journal of the Bombay Natural History Society' as follows:—"The nests are placed in trees at heights varying from twenty to forty feet, more often nearer the former than the latter, and in every instance the nest has been suspended from a fork

of a small branch. It is suspended much in the same manner as an Oriole's and not like that of *Microscelis* and other Bulbuls. The main portion of the nest is made of coarse grasses, bamboo-leaves, soft bark in long shreds, and of other suitable fibrous materials. Moss is never used (except as a decoration outside), moss- and fern-roots very seldom, except in the lining, which is sometimes composed of the latter.

"The grass is so used as to pass under and through the base of the nest and is then brought inside and over the supporting fork, round the nest again and, if long enough, over the fork on the opposite side. This procedure is carried out with all, or nearly all, the longer materials, so that the nest assumes a rather bulky and, often, a very untidy appearance. It is, though, very strong and it requires no inconsiderable force to detach it from its supports.

"The lining is generally composed of rather fine grasses, more or less mixed with fine, *soft* fern-roots. In some nests it is composed entirely of the last material and, in a few, there is little or no lining whatsoever.

"They are rather shallow as a rule but differ considerably in this respect. I have taken nests of depths ranging from 1.2" only to over 2.9". In breadth they vary from 3.2" to nearly 5".

"The branch selected for the site of the nest is generally one towards the outer part of the tree and it is, therefore, often very difficult to obtain without cutting off a large portion of the branch."

To the above I can add little, though since it was written I have seen a few nests built in bushes at four to eight feet from the ground and I have also seen a few with quite a lot of moss used for the exterior of the nest.

The breeding season is late May and June, while I have taken many nests in July also.

The full clutch of eggs is two or three, generally the former, but I have also seen a very few fours.

The eggs are very like those of the Black Bulbul but have a certain character of their own due to the fineness and regular distribution of the spots. The most typical egg has the ground white to pale cream colour speckled all over with light reddish-brown; then we have eggs of the same character but with darker reddish-brown spots, and others again with the markings still darker and purplish and, finally, a few with the specks deep reddish-brown. In these very dark eggs only do the markings tend to form caps at the longer end. Less common types of eggs have the blotches rather larger and bolder, and these could not be distinguished from many eggs of the Himalayan Bulbul. One aberrant pair has the ground a lilac-pink mottled and blotched all over with light brownish-red and lavender, whilst of yet another pair one egg is mottled over the whole surface with brown with a few deep red spots. The other egg of this pair is normal.

In shape the eggs are rather long ovals, broad ovals being exceptional.

One hundred eggs average 25.7×18.1 mm. : maxima 28.1×19.0 and 27.3×19.3 mm. ; minima 22.0×16.0 mm.

Both sexes have been snared on the eggs and both, I believe, share in the work of building the nest, but I cannot say to what extent the male works beyond bringing material.

(397) *Alcurus striatus* (Blyth).

THE STRIATED GREEN BULBUL.

Alcurus striatus, Fauna B. I., Birds, 2nd ed. vol. i, p. 379.

The Striated Bulbul has a very wide distribution, being obtained in Nepal and Sikkim, thence all along the Himalayas to the Chin Hills, Kachin Hills and Yunnan. In Burma it seems to be found throughout all the hill-ranges down to Tenasserim. It breeds, I believe, only at fairly high levels. In Sikkim Stevens obtained it between 4,700 and 6,100 feet, whilst Mandelli took a nest near Lebong at about 5,000 feet and Masson one at about 7,500 feet. In the Assam Hills its breeding range is certainly not below 4,000 feet, and probably runs between this and 7,000.

Very little is really known or recorded about this handsome Bulbul. Stevens says it is strictly confined to forest, and both he and other observers, such as Davison, all say that it keeps much to the higher trees. So far as I have seen this is not the case in the Hot Weather and Rains when the birds are breeding, at which time all those I have seen—they are but few—have been haunting low bush-scrub and undergrowth in rather stunted evergreen forest of Oak. Here and there in the forests were small patches of enormous trees, providing nesting places for Hornbills etc., but the Bulbuls never seemed to frequent these.

The only nest recorded, other than those taken by myself, is the one obtained by Mandelli and described by Hume in 'Nests and Eggs,' taken "about 4 feet from the ground amongst the foliage of a kind of prickly bamboo growing out of the crevices of a patch of large stones." It seems to have corresponded well with those taken by myself, though Hume refers to it as being "altogether a light brown nest," a feature not observable in mine. My own notes read:—"Personally I have taken two nests only of this species and have seen two others, all of which were much alike in shape, materials etc. Outwardly all four nests were composed of fine elastic twigs and coarse fern-roots, these materials being very strongly and closely interlaced with one another. Inside this are more twigs and roots, a few dead stems of weeds and, in one case, a few tiny scraps of fern and moss; none of these are at all intertwined, being merely wound round and round in the same manner as is the lining,

which is composed entirely of very fine shreds of grass. The nests are fairly compact and rather stout, measuring externally 3.8 to 4.2 inches in diameter by about 1.5 to 1.75 in depth; internally they measure about 3 inches by 1 or a little more.

"The first nest I took was found in a thick bush growing by the side of a path zig-zagging up the side of a steep hill. The parent birds flew out of the bush on my approach and kept hovering about, calling very loudly, much in the way the common Bengal Bulbul does. In spite, however, of my having noticed whence they flew, I was unable to find the nest, so at last came to the conclusion they had not been to build. I therefore left the place and went on my way but as I got to the turn of the path, just above the nest, one of the birds flew into it again, so I returned to have another search and this time, noting very carefully whence it flew, I succeeded in finding the prize. It was placed quite close to the ground and, besides being hidden by numerous thick twigs and branches, was half buried in dead leaves and also concealed by a thick creeper which grew over the bush. This nest was in fairly thick forest with dense undergrowth and the two nests which were brought to me were said to have been taken in much the same sort of place. The fourth nest was taken from a clump of small bamboos growing in mixed scrub and bamboo jungle.

"All four nests were found in June.

"One nest contained two young birds; the other three each three eggs."

The only other nest I have any information about is one taken by W. Macdonald above Darjiling at about 7,500 feet. The nest was sent to me with the skin of a cock bird. The former was like the one described and was said to have been taken in a bush in forest. This nest also contained three eggs.

Two clutches are in ground-colour a very pale cream faintly suffused with brown at the larger end. The primary markings consist of rather bold blots and small blotches of dark reddish-brown and very deep purple in colour; these are scattered over the whole surface and are more numerous and form rings at the larger end; the secondary marks are of grey and neutral tint of similar character and distribution.

The clutch from Darjiling has a rather bright pink ground, with dark chestnut primary and grey secondary markings distributed like those of the other clutches.

The two types are very unlike, yet both can be matched by eggs of almost any one of the birds of the genus *Molpastes*.

Twelve eggs average 22.05×16.3 mm. : maxima 23.0×17.2 mm. ; minima 21.0×16.1 and 22.1×15.3 mm.

Three of the clutches were broad ovals in shape, the third more narrow and pointed.

All the nests known were taken in June except Mandelli's, which was taken on the 8th May.

Molpastes cafer.**THE RED-VENTED BULBUL.**

Since the first volume of the 'Fauna' was written I noticed for the first time Linné's name *cafer* for this species of Bulbul and this, although so unsuitable, must take priority of Gmelin's excellent name *hæmorrhous* for our Red-vented Buleuls. I have given my reasons in full on page 613 of vol. viii of the 'Fauna,' and need not dilate further here upon the matter.

(398) Molpastes cafer cafer (Linn.).**THE CEYLON RED-VENTED BULBUL.**

Molpastes hæmorrhous hæmorrhous, Fauna B. I., Birds, 2nd ed. vol. i, p. 383.

Molpastes cafer cafer, *ibid.* vol. viii, p. 613.

The Ceylon Red-vented Bulbul is found over the whole of Ceylon plains and up to about 3,000 feet in the hills. In Southern India it occurs as far North as about 18° in the East and about 20° in the West. It is found over practically the whole of this area, plains, foot-hills and the higher hills, ascending many of these up to some 8,000 feet. It is essentially a bird of towns, villages and cultivation and, where mankind is, there the Red-vented Bulbul will also be found. Where there is only virgin forest, great expanses of uninhabited country of any sort, there no Bulbul will be found, but let mankind cut down the forest, cultivate the wastes and, within a very few years, our little friend will arrive, take up his abode and increase rapidly.

Nearly all the old accounts under the name of *M. hæmorrhous* (= *cafer*) in Hume's 'Nest and Eggs' refer to the more Northern form, which I have separated as *pallidus*, and the descriptions of nests are too meagre to be worth quoting. Indeed, so common is this bird that hardly any observer or collector has bothered about writing descriptions of its nests and breeding habits.

In Ceylon Legge says "it is found abundantly throughout the whole island to a general altitude of about 3,500 feet and in Uva ranges to about 5,900 feet, its highest point being the neighbourhood of Hakgala. It is most numerous in open and cultivated districts, particularly in the west and south of the island and in the maritime portions of the eastern and northern divisions. In the extensive forests of the east and north-central portions it inhabits chiefly those localities which have been cleared and are now open or covered with low jungle, but in the depths of the woods it is less common than the White-eyebrowed Bulbul."

Jerdon says that "it frequents gardens and cultivated ground and low bushy jungle but is never found in forests, and it ascends the Neelgherries to about 6,000 feet only."

To put it briefly, this Bulbul breeds in the haunts of man, and it may be found in any garden, park, hedgerow, or village surroundings, less often in cultivated lands and scrub-jungle away from humanity, and never in forests or the wilds.

The nest is a cup made of dead leaves, grass, twigs, creeper-stems and odd scraps of dry moss, lichen etc. In some nests grass and a few leaves are almost the only materials used, in others bamboo-leaves and roots may form the staple articles of construction. As a rule they are fairly well put together, though never very tidy but, sometimes, they are flimsy, carelessly built and very untidy little nests. In Ceylon, according to Wait and Phillips, grass seems generally to constitute the principal material employed in the construction of the nests, some being built entirely of it. In Bangalore, also, Williams says that grass is used more than anything else and he adds that cobwebs are used to strengthen the outside. The lining of fine roots or fine grass-stems, usually pretty plentiful, sometimes rather scanty. The measurements vary a good deal but in diameter the extremes are probably $3\frac{1}{2}$ and $4\frac{1}{2}$ inches and in depth about 2 to 3.

They are seldom placed at any great height from the ground and never quite on it, but within these limits may be built almost anywhere; bushes, flowering shrubs or small trees in gardens or by paths and roads, scrub round villages, half grazed down by the cattle, a patch of thick grass in an orchard, a trellis over a verandah, or on the walls for creepers to climb up. Rarely they may be placed on a bough of a bigger tree such as a Mango or Jack-fruit, but such sites are exceptional.

Wherever they may be placed concealment is never sought. It may sometimes happen that thick foliage screens them well from casual view, but often they seem to deliberately choose sites of the most conspicuous nature. In consequence they suffer very greatly from the depredations of Magpies, Lizards and other vermin.

The breeding season varies greatly. Wait gives the breeding time in Ceylon as November till May, but both he and Phillips have taken fresh eggs up to the end of July, though March and April are the two months in which they have found the greatest number of nests.

In Travancore T. F. Bourdillon took nests with eggs in May and June; Williams, in Bangalore, took them from March to July; Vidal, in the South Konkan, in April and again in September, whilst in the Nilgiris nests may be found practically throughout the year, though Miss Cockburn gives the favourite months as February, March and April. Finally, Aitken found nests in Berar and Bombay in September and October.

Three seems to be the normal number of eggs laid, often two only and very rarely four.

They vary very greatly in colour. The ground-colour ranges from a pink or cream, so pale as to appear almost white, to a fairly warm pink or creamy buff. In most eggs the markings consist

of numerous small blotches, or specks, or small spots scattered freely over the whole egg, nearly always more numerous at the larger end and often forming rings or caps on that half. These markings may be of almost any shade of red, red-brown or purple-brown but, in the great majority of eggs, there is a decided purple tinge. In addition to these primary markings, nearly all eggs have secondary blotches of pale lavender or inky grey, in some sparse, in others so numerous as to give a purple-grey tint to the larger end. In some eggs the markings form very definite rings and caps, and in these eggs they are generally scanty over the smaller half of the egg. In a few eggs the small blotches become larger and bolder and, as these are nearly always proportionately fewer in number, such eggs are very handsome. Two extreme specimens of this latter type have in one instance a salmon ground with bold blotches of deep red and purply black with clouds of inky grey; the other has a cream ground with irregular splashes and blotches of deep red, running into one another, mixed with small secondary marks of grey.

A very unusual pair taken by Phillips in Ceylon has the ground-colour a pale cream-grey minutely freckled all over with lilac-grey in one egg and by lilac-red in the other. Another pair of his eggs has a warm pink ground freely speckled all over with bright pale brick-red, still more numerous at the larger end, where they are mixed with the secondary markings of grey.

In spite of the great variation as shown by the foregoing description, the eggs of the Southern Bulbuls do not vary to anything like the extent the eggs of the Bengal form do and, as a whole, are not nearly so richly or boldly marked and coloured.

One hundred eggs average 21.1×15.5 mm. : maxima 24.3×16.5 and 20.2×16.9 mm. ; minima 19.0×15.1 and 21.4×15.0 mm.

The texture of the eggs is neither very fine nor very close; few show any gloss and the shell is rather brittle for the size of the egg.

There appears to be no information as to how long incubation lasts but it is almost certainly thirteen days, as in the Bengal bird. Both sexes take part in incubation but I can find nothing on record as to whether the cock undertakes an actual share in the construction of the nest. So far I have been told that he has been seen to bring materials to his wife but, beyond this, my informant could tell me nothing definite.

(399) *Molpastes cafer pallidus* Stuart Baker.

THE CENTRAL INDIAN RED-VENTED BULBUL.

Molpastes hæmorrhous pallidus, Fauna B. I., Birds, 2nd ed. vol. i, p. 385.
Molpastes cafer pallidus, ibid. vol. viii, p. 613.

This race occurs North of the imaginary line drawn from 20° on the West to 18° on the East across the South of India. North

it extends on the West through Bundelkhand and the Rewah States to the Southern portions of Cutch, Khatiawar and Rajputana. On the East it is the form found in Behar and the dry districts of Western Bengal.

There is little one can write about the nidification of this Bulbul that has not already been written about the Ceylon race. It is the same familiar bird haunting gardens, villages and towns and eschewing forests and wilder country at any distance from human beings and their dwellings.

Their nests, also, are placed in similar positions and situations, ornamental shrubs in gardens, small fruit-trees and creepers on dwellings all being favourite sites for their nests.

Hume's description of two nests taken by him in Bareilly would do for most other nests of this species equally well :—

"Close to the tank is a thick clump of Sâl-trees (*Shorea robusta*), the great building timber of Northern India.

"In one of these a Common Madras Bulbul" [he refers to *pallidus*] "had made its home. The nest was compact and rather massive, built in a fork, on and round a small twig. Externally it was composed of the stems (with the leaves and flowers still on them) of a tiny ground-like (*Senecio*) asteraceous plant, among which were mingled a number of dead and skeleton leaves and a few blades of dry grass; inside, rather coarse grass was tightly woven into a lining for a cavity, which was deep, being about 2 inches in depth by about 3 inches in diameter.

"This is the common type of nest, but about half an hour later, and scarcely a hundred yards further on, we took another nest of the same species. This one was built in a Mango-tree, towards the extremity of one of the branches where it divided into four upright twigs, between which the Bulbul had firmly planted his dwelling. Externally it was as usual composed of the withered stems of the little asteraceous plant, interwoven with a few jhow-shoots (*Tamarix dioica*) and a little tow-like fibre of the putsan (*Hibiscus cannabinus*), while a good deal of cobweb was applied externally here and there. The interior was lined with excessively fine stems of some herbaceous exogenous plant, and there did not appear to be a single dead leaf or a single particle of grass in the whole nest."

Other nests taken near Delhi are said by Blewitt to be made "on the outside coarse grass, with fine khus or fine grass for the lining. Very frequently horse-hair is likewise used for lining the interior of the cavity.

"I have seen some nests bound round on the outside with hemp, other kinds of vegetable fibres, and even spiders' webs."

An unusual nest taken by W. Theobald in Monghyr "was composed of very small twigs and lined with fine grass-roots," but a yet more curious nest, taken by A. Anderson, had "the upper portion of the nest for an inch all round composed entirely of green

twigs of the neem tree on which it was built and the under surface (below) was felted with fresh blossoms belonging to the same tree. The green twigs had evidently been broken off by the birds, but the flowers were picked up from off the ground, where they were lying thick."

Sometimes the nests are very flimsy and carelessly put together. Bates ('Bird Life in India') writes that the nests "are very loosely made, thin walled cups of bents, in comparison with which the nests of the Southern Red-Whiskered Bulbuls are most solid structures. It really does seem extraordinary that these cheery little birds should be so common when one thinks of the astonishing number of nests which are destroyed, many through the birds' own stupidity."

The nesting season extends from April—rather unusual—into September, which is exceptional. May and June are undoubtedly the months in which most eggs are laid, though in Poona Nurse found them breeding in August, and in Baroda, Poona and Khandalla Sir Percy Cox took a really beautiful series between the 16th May and the 16th October, more being found in August than in any other month.

The number of eggs laid is, perhaps, normally three, but two only are often incubated and four hardly ever found.

The eggs vary to just the same extent as do those of the preceding Bulbul and there is no further description necessary.

Sixty eggs average 21.9×16.2 mm.: maxima 23.8×16.3 and 21.4×18.7 mm.; minima 20.1×16.0 and 22.2×15.3 mm.

(400) *Molpastes cafer burmanicus* Sharpe.

THE BURMESE RED-VENTED BULBUL.

Molpastes hæmorrhous burmanicus, Fauna B. I., Birds, 2nd ed. vol. i, p. 385.

Molpastes cafer burmanicus, ibid. vol. viii, p. 613.

Although it is rather hard to define the Western limits of this race, it may be said to range from Manipur and the Chin Hills South to Rangoon and East to the Sittoung River.

Some birds in the Eastern hills South of the Brahmapootra are somewhat intermediate but, for the purpose of this work, I shall retain all these latter under the name of *bengalensis*.

Although this bird is just as common round towns, villages and gardens as are the other forms, it is not so persistent an adherent to civilization and will often be found at some distance from dwellings. Its nest may often be found in bamboo- and scrub-jungle, light secondary growth and the outskirts of forest, though very rarely inside the latter.

Messrs. Mackenzie and Hopwood took a fine series of this Bulbul's eggs, now in my collection, in various parts of Burma, but chiefly

in the Chin Hills. The former notes about their nests:—"These vary a good deal in the matter of materials but not much in construction. Generally they are placed in bushes in gardens and round the towns and villages and quite often in small trees. Among other places I have taken them from are bamboo clumps, in which they may be placed as high as twelve feet from the ground, one of a little cluster of big trees on a golf links, a thick camphor bush beside a ride, sometimes in light open jungle but, most often, from bushes and fruit-trees in gardens.

"The nest is not always placed in upright forks of branches and on several occasions I have found more or less suspended nests. One such was really suspended like an Oriole's, the nest itself being bound to the supporting twigs by cobwebs passed round and over them. Other nests are more like Drongo's nests, built in horizontal forks of branches or between horizontal twigs, the nest-material embracing those on either side.

"The materials used are grass, leaves, bamboo leaves, roots etc.; sometimes one or two of these, sometimes more, and yet at other times nearly all grass or grass and roots.

"One nest had the bottom very thin, with a basis of dead leaves, very withered, bound together with cobwebs; inside the leaves was an inner lining of coarse grass and then a real lining of fine grass just neatly moulded round to fit the inside. Cobwebs were used all through the nest to hold the materials together and also—this was a suspended nest—to fasten the nest to the suspending twigs.

"My nests were all taken at heights between two feet, very low down in bushes, and nearly twenty feet up in bamboo clumps and small trees.

"In size the nests are much the same. One measures on the outside $3\frac{3}{4}$ " across and 3" deep, the egg-cavity being $2\frac{1}{4}$ " in diameter by 2" deep. This is a compact, very well built nest, and loosely, carelessly built ones, which often occur, would be a little broader, but no deeper."

The nesting season is much less erratic than for most Bulbuls of this species. Four out of five nests with eggs will be found in April and they continue to lay in lessening numbers in May and during the first half of June. A few odd nests may be seen still later and two of Cook's nests were taken at Maymyio in July, whilst Harington took one nest with three eggs in Rangoon on the 31st August, and Wickham obtained one at Maymyio, also with three eggs, on the 8th of that month.

The number of eggs laid is two or three, generally the latter; four must be most exceptional, as in Hopwood's and Mackenzie's huge series there is only one such.

In coloration they go through all the varieties already described but, as a whole, are decidedly more richly coloured than any of the Southern Indian forms, making a series almost as handsome as one

of the Bengal bird's eggs. It is unnecessary to go into details of types beyond saying that the one which has the ground-colour deep pink, salmon or cream, with extra large and sparse blotches of purple-red and almost black, is comparatively common. Some of these are much clouded with secondary marks of inky grey and I have one pair in which the whole of the larger ends are thus clouded, giving a very peculiar effect.

Two hundred eggs average 22.6×16.2 mm. : maxima 26.0×17.2 and 23.0×18.2 mm. ; minima 18.25×15.0 mm.

I have seen two or three pigmy eggs of this species, but the measurements of these are not included in the above.

Both sexes take part in incubation.

(401) *Molpastes cafer nigripileus* (Blyth).

THE TENASSERIM RED-VENTED BULBUL.

Molpastes hæmorrhous nigripileus, Fauna B. I., Birds, 2nd ed. vol. i, p. 386.
Molpastes cafer nigripileus, ibid. vol. viii, p. 613.

This is an Eastern Burmese race, apparently occurring throughout Karenni down to the South of Tenasserim ; in Burma the Sittoung on the West and the Salwin on the East form its boundaries. Its Northern limits are somewhere not far North of Kalaw, though at this particular place all Cook's and Macdonald's birds are typical *nigripileus*. Southwards I think all the peninsular Siam birds should be united with this race.

When the second edition of Hume's 'Nests and Eggs' was written the only record of its nidification was that of Darling, who took a nest with three eggs on the 16th March, built in a little bush about a foot from the ground.

Since then Cook and Macdonald round Kalaw and Hopwood and Mackenzie in Tenasserim have taken numerous nests and eggs.

Davison says that it is a bird of the more open and cultivated parts of Tenasserim. "Not an uncommon bird, frequenting gardens, clearings etc., but avoiding the forest as a rule. It is rather a shy bird and is found less often in close proximity to houses. Thus in Moulmein, though common in large park-like grounds, it appeared to be quite wanting from the small gardens in the heart of the town, where *emeria* was a common bird."

About Kalaw, also, it seems to be a sort of half-way bird haunting larger gardens and village surroundings but keeping at a distance from the houses and not entering the villages for nesting purposes. Sometimes, too, they nest in the more open jungle, such as partly-grazed scrub, bamboo and grass, light forest and small copses and spinnies of both bush and trees. At the same time I have no record of its actually breeding in forest at all dense or extensive.

It breeds throughout the plains and up to some 4,000 feet. Hopwood found it breeding freely on the sea-coast at Maungmagan,

in Tavoy, whilst all Cook's nests at Kalaw were taken between 3,000 and 4,000 feet.

The breeding season is April, May and June, eggs being laid equally often in each of these three months.

The nests seem to be generally placed in low bushes, Cook and Hopwood taking all theirs in low shrubs, "raspberry bushes" and similar places. The only nest taken at any height from the ground is one noted by Mackenzie as built "in an orange tree, 15' from the ground."

The nests are quite typical *Molpastes* nests but Hopwood remarks:—"I notice that the nests are always lined with skeleton leaves," a quite unusual feature in Bulbuls' nests and, apparently, not present in those nests of the same bird taken by Cook.

The eggs number two or three and are quite typical of the genus in colour, shape and texture, but the prevailing type seems to be that with a lilac-pink ground and very large, rather sparse blotches of purple-red with numerous secondary ones of inky grey.

Thirty eggs average 22.8×16.6 mm.: maxima 25.0×16.5 and 24.0×17.8 mm.; minima 20.2×16.2 and 22.0×15.3 mm.

(402) *Molpastes cafer chrysorrhoides* Lafr.

THE CHINESE RED-VENTED BULBUL.

Molpastes hæmorrhous chrysorrhoides, Fauna B. I., Birds, 2nd ed. vol. i, p. 387.

Molpastes cafer chrysorrhoides, ibid. vol. viii, p. 613.

The Chinese race of Red-vented Bulbul ranges from South-West China into the Shan States, Kachin and Bhamo Hills and the North of Karenni. Birds from North and Central Siam are also of this form.

There is very little written about the nidification of this Bulbul in Burma but Harington found it breeding at Sinlum Kaba in the Bhamo Hills and at and round Taunggyi in the Southern Shan States, while Wickham took its nest at Yatsauk, in the South Shan States.

There has been nothing recorded about its habits either, but Vaughan and Jones say that in China it "occurs on the coast and inland, but always shows a decided preference for sparsely wooded hills and for localities at a distance from human habitations.

"The Black-headed Bulbul invariably attacks the Chinese Blue Magpie (*Urocissa erythrorhyncha*) whenever that marauder approaches its nest, and with much clamour and great valour always drives the thief away.

"The nest, a flimsy structure, is usually placed in a fir-tree, and often at a considerable elevation.

"The eggs vary from two to six in number, but are usually three or four, and are of the common Bulbul type."

Harington, under the name of *nigripileus*, writes (Journ. Bomb. Nat. Hist. Soc. vol. xiv, p. 597, 1902):—"It nests chiefly in April and May, making a flimsy nest of leaves, grasses etc. lined with fine grass. I found one curious nest made of bits of the 'Pioneer' newspaper. Eggs generally three, sometimes only two."

In the few nests found in Burma and recognized as being of this Bulbul there have been only two or three eggs. The colour seems to run through all the usual variations, the series, as a whole, being rather dull but not pale, handsomely marked or exceptionally marked sets of eggs being rare.

Fifty eggs average 22.0×16.6 mm.: maxima 24.3×17.0 and 24.0×18.0 mm.; minima 19.7×16.0 and 22.1×15.1 mm.

In Burma nests have been taken in May and June, whilst in China Vaughan and Jones took nests with eggs in May, June and early July.

(403) *Molpastes cafer bengalensis* Blyth.

THE BENGAL RED-VENTED BULBUL.

Molpastes hæmorrhous bengalensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 387.

Molpastes cafer bengalensis, ibid. vol. viii, p. 613.

The Bengal Red-vented Bulbul is found throughout the Outer Himalayas and sub-Himalayan Terai from Kumaon to Eastern Assam. It occurs South through Oudh, Northern Behar and Eastern Bengal from about Chota Nagpore, as soon as one gets into the wetter districts, and extends through the Khasia and Naga Hills to Lakhimpur, where the bird is typical *bengalensis*. In Cachar, although the vast majority of birds, certainly the plains birds, are *bengalensis*, many others closely approach *burmanicus*, and in Eastern North Cachar, on the borders of Manipur, more birds are nearer the Burmese than to the Bengal form. It is a curious fact, however, that even as far West as Kamroop individual birds crop up which are practically purely Burmese in coloration.

This Bulbul, over the greater part of its range, is a bird of human habitations, gardens and cultivated country and, whenever fresh country is opened up, the Bulbul follows mankind into it and establishes himself as one of the family. It breeds all round villages and often in the centre of them, provided there are a few bushes available, a few Guava or Custard-apple trees or other suitable building-sites. It is common in Mango and other orchards, breeding both low down in the bigger trees and in brambles, canes or bushes under them. Occasionally it will even build a nest in the weeds and coarse grass-tufts within a few inches of the ground and in the higher parts of its habitat Raspberry and Blackberry canes form very favourite building-sites. On the outskirts of its habitat it may sometimes be found nesting in thin scrub- and bush-jungle or in light forest. This I found to be the case in both North Cachar

and the Khasia Hills but, even here, they preferred to build their nests in gardens and round villages.

They ascend to considerable elevations in opened-up country. In Sikkim, generally, Stevens discredits its ^{climbing} ^{much over} 4,500 feet, but it is common and breeds freely all round Darjiling to over 7,000 feet, though it is still more common at 4,000 feet downwards. In Nepal it breeds up to some 3,000 feet near villages and Scully reports it as breeding in the Residency grounds, "the nests being commonly placed in small Pine-trees (*Pinus longifolia*)."

The nests are built in all sorts of queer places other than bushes and trees. I have myself known nests built in verandah shrubs and trellis-work, on an old post in an outhouse and on a Date-palm.

They also nest on big and fairly lofty trees far more often than the Southern birds do, and nests quite high up in Mango-trees are not uncommon, in some instances as much as twenty feet from the ground.

Hume thus sums up descriptions of the nests:—"They "were very compact and rather deep cups about $3\frac{1}{2}$ inches in diameter and 2 inches in height, very firmly woven of moss and grass-roots, with a certain quantity of dry and dead leaves, and here and there a little cobweb worked into the outer surface. Sometimes a little fine grass was used as a lining; but generally there was no lining, only the roots that were used in finishing off the interior of the nests were rather finer than those employed elsewhere. The egg-cavity is very large for the size of the nest, the sides, though very firm and compact, being scarcely above half an inch in thickness. The nests differ very much in appearance, owing to the fact that in some all the roots are black, in others pale brown."

To the above little can be added. Where bamboo-leaves are easily obtainable these seem to be constantly used in the construction of the walls and base of the nest, being held in their places by long roots, creepers and stalks of weeds. Some nests are made principally of grass, others almost entirely of leaves, other materials being used only to hold these together. In some nests, not many, tiny twigs are used, in others fibres are extensively employed and in a great many nests there are good well-made linings of either fine grass-stems or fine roots.

The breeding season is principally April, May and June but eggs may be taken in the end of March and also in July.

Both sexes incubate and both take part in the actual construction of the nest, the male not only bringing material but actually working it into the nest.

His courtship flight is very pretty, little hoverings in the air with tail widely spread, plumage fluffed out and wings beating rapidly for a few moments before he perches alongside his mate on some small twig and makes love to her with his bill, which

he places against hers or with which he gently nibbles the feathers of her neck and head.

Incubation takes thirteen days.

The eggs number three or four, each about equally often; two are sometimes incubated and I have seen a few clutches of five.

They form, as a series, the most handsome of all the *Molpastes cafer* group. All the types described under the other races are also to be found in this, but the finest coloured eggs in the others are represented by still finer and richer specimens in the present subspecies. A few are worthy of a brief description. A clutch of five has the ground a pale pink; this is smudged, blotched and speckled with deep brownish-red, the blotches very large, one or two covering nearly half the larger end. Another clutch of four is pale bright salmon-pink with great clouds of inky purple, through which show up deep blackish-red spots and blotches. Other clutches are densely speckled and mottled with deep red all over and are very like miniature eggs of the Finch-billed Bulbul.

In texture and shape they are quite normal; a few eggs show a slight amount of gloss.

One hundred eggs average 22.9×16.9 mm. : maxima 25.3×17.3 and 24.9×17.6 mm. ; minima 20.9×17.5 and 21.8×15.3 mm.

(404) *Molpastes cafer intermedius* (Jerdon).

THE PUNJAB RED-VENTED BULBUL.

Molpastes hæmorrhous intermedius, Fauna B. I., Birds, 2nd ed. vol. i, p. 389.
Molpastes cafer intermedius, ibid. vol. viii, p. 613.

The Punjab race of Red-vented Bulbul is found in the lower ranges of the Himalayas from the extreme North-West to the Simla States and Garhwal Hills; Kashmir and hills of the Punjab to Western Nepal. In Kashmir Ward records their occurrence in Jammu and Poonch; in the Simla States Jones says that they are common in the valleys up to 5,000 feet, but Dodsworth found them breeding about 1,000 feet higher still. It is common and breeds freely in the Salt Range.

This Bulbul is entirely a bird of civilization and haunts gardens, parks, road-side bushes and hedges, open land and scrub round houses and villages, or bushes and trees in cultivated land. It is very numerous in all towns with large gardens. Whympers used to have four or five pairs breeding yearly in his garden in Naini Tal, at about 5,000 feet, nesting in the shrubs and bushes.

Marshall, Rattray and many others found it breeding near Murree in the lower hills up to about 4,000 feet or higher.

Hutton writes that its "nest is small and cup-shaped, composed of fine roots, dried grasses, flower-stalks, chiefly of forget-me-not, and a few dead leaves occasionally interwoven; in some the outside

is also smeared over here and there with cobwebs and 'silky reed-down'; the lining is usually of very fine roots."

In fact the nest of this Bulbul is much the same as those of the other members of the genus, and probably varied in construction to much the same content. It is generally placed low down in thick bushes.

The breeding season is chiefly in May and June but a few birds breed in April and Jones took a nest in Keonthal on the 1st July.

The eggs number three or four, the latter number more often than the former. They are just like other *Molpastes* eggs and require no separate description, but on the whole are rather poorly marked, very handsome eggs being quite exceptional. The most common type is the one with an almost white ground, speckled rather profusely over the whole surface with purple-red or deep red-brown freckles.

One hundred eggs average 22.5×16.6 mm.: maxima 26.2×18.0 mm.; minima 19.6×15.2 mm.

***Molpastes leucogenys*.**

THE WHITE-CHEEKED BULBUL.

(405) *Molpastes leucogenys leucogenys* (Gray).

THE HIMALAYAN WHITE-CHEEKED BULBUL.

Molpastes leucogenys leucogenys, Fauna B. I., Birds, 2nd ed. vol. i, p. 389.

The White-cheeked Bulbul occurs in the Himalayas between 3,500 and 7,000 feet from Afghanistan to Bhutan. I have also had specimens sent me for identification from the Abor-Mishmi Hills in North Lakhimpur.

It is a bird of villages, towns, gardens, parks and cultivated lands, but it will also nest in scrub-jungle, secondary growth in abandoned cultivation and in bushes and small trees in ravines which are quite well wooded, as well as on open, bush-covered hill-sides.

It almost invariably builds its nest in bushes or in low thickly-foliaged small trees between two and ten feet from the ground, but far more often below five feet than above that height. Rarely it is placed in saplings or small trees at fifteen or twenty feet from the ground.

Concealment seems never to be sought for, even when the nests are placed in gardens or near well-frequented paths and roads. In Naini Tal, at about 5,000 feet, Whympers had them "breeding abundantly in the orange-trees in my garden." The situation selected seems to be generally one in an upright fork of some branch, or in between vertical twigs, while the pendent or cradle type of nest appears to be exceptional with this species.

The breeding season is from April to July.

Unwin found it breeding in Agrore in April and May ; in Murree Marshall, Rattray and others took eggs during May and June. In Mussoorie Hutton, Ollenbach, Whymper and others took nests from early April to the end of June, whilst in Naini Tal Whymper and Marshall found eggs from the end of May to the end of June. The only record I have for July is a nest taken by Jones in the Keonthal State on the 3rd of that month. In Kashmir most birds breed in June.

It seems almost unnecessary to describe the nest beyond saying that it is quite typical of the genus. Hume, however, gives a general description of them, which I quote :—"The nest is a loose, slender fabric externally composed of fine stems of some herbaceous plant and a few blades of grass, and internally lined with very fine hair-like grass. The nests may measure, externally, at most, 4 inches in diameter; but the egg-cavity, which is in proportion very large and deep, is fully $2\frac{1}{4}$ inches across by $1\frac{3}{4}$ inches deep. As I before said, the nest is usually very slightly and loosely put together, so that it is difficult to remove it without injury; but sometimes they are more substantial, and occasionally the cup is much shallower and wider than I have above described."

This description would do for many nests but others have more materials used. Brooks says they make use of fine grass, roots and fibres; Whistler describes one of his nests as "a deep, well-made cup of fine yellow dry grasses, placed on a slight foundation of thicker grasses, bents and one or two dry leaves, here and there a little vegetable-down."

The eggs are typical *Molpastes* eggs and are, on the whole, fairly well and richly marked, but speckled eggs number many more than those with large blotches. A rather exceptional type is one with a pale pink ground lightly freckled everywhere with tiny purple-red specks which practically coalesce at the larger end to form dense broad rings.

They give one the impression of being longer in shape than most *Molpastes* eggs, but measurements prove that this is not the case.

One hundred eggs average 21.6×16.1 mm. : maxima 25.0×17.0 and 24.0×18.0 mm. ; minima 19.0×15.2 mm.

(406) *Molpastes leucogenys leucotis* Gould.

THE PLAINS WHITE-EARED BULBUL.

Molpastes leucogenys leucotis, Fauna B. I., Birds, 2nd ed. vol. i, p. 390.

This bird is a plains race of the White-cheeked Bulbul, which is purely a hill form. It is found in Sind, Cutch, Guzerat, Rajputana, Punjab, the North-West Provinces, South to Etawa and Central India as far as Jhansi, Saugur and Hoshangabad.

This bird appears to move about considerably with the seasons and may not, perhaps, breed over the whole of this area, and Hume does not think it bred at the three places last mentioned above or in the Central Provinces.

Hume says that the nests are generally built "in dense and thorny bushes—acacias, catechu, and jhand (*Prosopis spicigera*)—and are placed at heights of from 4 to 6 feet from the ground. The Customs hedge is a great place for their nests, but I have noticed that they are partial to bushes in the immediate neighbourhood of water; and at Hansie Mr. W. Blewitt always found them either in the first ditch or along the banks of the canal."

It has been considered hitherto to be a bird almost entirely confined to the vicinity of human habitation and cultivated country, but Ticehurst rather dispels this idea, at all events so far as Sind is concerned. He observes:—"The White-eared Bulbul is a common and constant resident throughout Sind wherever there are gardens, cultivation, or trees, being equally numerous in gardens in towns *as away out in the thicker jungle* [the italics are mine]; in fact it is only absent in quite bare tracts or mean scrub. It even occurs in the lower hills and Euphorbia jungles, unattractive though they seem."

Betham thus describes one of their favourite breeding grounds near Ferozepore:—"The country consisted of low scrub jungle with a few small babool trees scattered about. Here they made their flimsy bulbul-like nests, mostly within hand-reach. I usually found the nest by seeing the birds building. Three eggs seem to form the full clutch but it was not easy to get these, as the eggs seemed to be purloined almost as soon as they were laid. I suspected lizards, mynas, squirrels, shrikes etc. A certain number of birds were always to be found on the Ludhiana road, some 3 or 4 miles out of Ferozepore, making their nests by the road-side. I took eggs from May to August, the earliest date being the 27th May and the latest the 16th of August."

Their nests are nearly always built low down in bushes and small trees, some a few inches above the ground and few over six feet from it. In construction they are like other *Molpastes* nests. Hume writes:—"The nests are usually composed of very fine dry twigs of some herbaceous plant, intermingled with vegetable fibre resembling tow, and scantily lined with very fine grass-roots. They are rather slender structures, shallow cups, measuring internally from $2\frac{1}{2}$ to 3 inches in diameter, and a little more than an inch in depth."

May to August seem to be the months in which they breed, the end of June to early August being more general than the earlier months. In Sind their breeding season is rather erratic, depending, doubtless, to some extent on rainfall and consequent supply of food. Ticehurst (Ibis, 1922, p. 545) says:—"I have seen eggs taken on the 25th March and have found nests ready for eggs on 23rd March and 16th April and observed young on the wing

by the 17th April. Mr. Bell, too, records several nests with fresh eggs in the last days of March, so one may safely say that is the normal time for first layings. It must breed several times in the course of the year; I have seen it feeding young on the 24th June, and found a nest with two feathering young on 14th September."

The full clutch of eggs is three, two only being often incubated, but four practically never.

As regards the eggs themselves, the only thing that need be said is that they are as a body pale, dull eggs, not so well and darkly marked as those of the White-cheeked Bulbul, blotched eggs being quite exceptional.

One hundred eggs average 21.6×15.0 mm. : maxima 22.5×16.3 and 21.4×16.8 mm. ; minima 19.0×14.2 mm.

(407) *Molpastes leucogenys humii* Oates.

THE BANNU WHITE-EARED BULBUL.

Molpastes leucogenys humii, Fauna B. I., Birds, 2nd ed. vol. i, p. 391.

Nearly all the specimens of this bird in the British Museum are from Attock, Bannu and Kohat on the extreme North-West Frontier. There are, however, other specimens from Jhelum; otherwise they are quite restricted to the small, compact area on the frontier containing the above three places.

There is nothing on record about this bird's breeding and I have seen no eggs, but Rattray took many nests and eggs round about Bannu which at the time we thought were merely *leucotis* but, of course, must really have been this bird's.

So far as Rattray's notes go the nests and eggs do not differ in any way from those of *leucotis*. The presumption also is that in their breeding habits there was nothing special to remark on or it would certainly have attracted his attention.

Xanthixus flavescens.

THE YELLOW-WINGED BULBUL.

(408) *Xanthixus flavescens flavescens** (Blyth).

THE ARRAKAN YELLOW-WINGED BULBUL.

Xanthixus flavescens flavescens, Fauna B. I., Birds, 2nd ed. vol. i, p. 392.

The Arrakan Yellow-winged Bulbul extends from all the hill-ranges of Assam South of the Brahmapootra to Manipur, Chin

* Kloss (J. A. S. B. new series, vol. xviii, p. 568, 1928), in commenting on my new race *vividus*, gives the type-locality of *flavescens* as Prome. This, of course, he cannot do, as Blyth himself (J. A. S. B. vol. xiv, p. 568, 1845), when describing the bird, says: "*Hab.* Arracan, where much less common than the next species."

Hills, Lushai Hills and Arrakan. Their breeding elevation is, roughly, between 3,000 and 7,000 feet, generally between 3,500 and 5,000 feet. The lowest elevation at which I have seen them breeding was at 2,500 feet in the North Cachar Hills, and this was but a single pair.

This Bulbul is not a bird of very dense forest, though they may occasionally be found feeding and even breeding in such. They prefer mixed scrub- and tree-jungle, secondary growth and, above all, light tree-forest with ample undergrowth, where the foliage overhead cannot shut out the sun, yet leaves a choice for the birds to hunt either the higher trees or the lower bushes for food, as they may think fit. They often breed in cultivated lands which have been deserted for a year or two only, and in which the secondary growth has not got to its thickest. Open glades and breaks in forests and the banks of wide streams are also frequented for nesting purposes.

The nest is very much like that of *Molpastes* but is generally rather shallower in proportion to its width. Roughly they measure between $3\frac{1}{2}$ and 4 inches in diameter, whilst in depth they seem to be always less than half their width. The egg-cavity measures about 3 to $3\frac{3}{4}$ inches by rather less than an inch in depth.

The materials used vary considerably and, some being all dark and others all light, the general appearance varies accordingly.

The first nest I ever took was composed outwardly entirely of very dark materials, the only light thing about it being one small yellow leaf woven into the base among the other materials; these consisted of black fern-roots, fine dark brown elastic twigs and dark tendrils of climbing-plants; the lining was composed of the ends of some grass, denuded of their seeds and bright tan in colour. Another nest obtained a little later was constructed largely of dead leaves and twigs interwoven with, and bound together by, roots and further strengthened here and there with cobwebs; the lining was of the same flowering-grass ends as in the first nest. What the name of this grass is I do not know but, when a quantity is put together, it has exactly the appearance of "khus-khus." Generally the bodies of the nests are dark-looking, contrasting with their linings, but some nests have dead oak-leaves and scraps of bracken incorporated with the other articles and lighting up the nest as a whole. The nests are quite well made, more compact and better put together than nine out of ten nests of *Molpastes* and, in consequence, they are much neater and have a more finished look about them. They are nearly always placed low down in bushes, generally between two and four feet from the ground, sometimes a little higher and, more rarely, in bushy saplings ten or twelve feet up. All the nests I have seen *in situ* have been placed in upright forks of bushes or in between two or more vertical twigs and, so far as I know, they are never pendent nor built in horizontal forks or branches. They are invariably well concealed and, as the

bird is shy and sneaks very quietly off her nest when disturbed, it is often very difficult to locate; nor does it give away the position by fussing round when you are hunting for it. The best way to get it is to hide and then, when you think the bird has had time to return, creep carefully up to the place where you think it is and watch her slip off. You will probably not see her return, for she approaches very stealthily through the bushes and often gets on to the nest without showing herself at all.

In North Cachar the birds seemed to be very fond of Citron-bushes in deserted cultivation, and I have taken several nests in these. The few nests I have seen in evergreen forest have nearly all been built on the matted vines of wild raspberries, growing in rank profusion alongside tracks from one village to another; one of these nests was rather exceptional in being built almost entirely of grass.

In North Cachar and the Khasia Hills they breed all through May and June and I have taken one nest as early as the 1st April and an occasional nest early in July. Hopwood took nests in the Chin Hills in April and May.

The number of eggs laid is two or three, one as often as the other, whilst I have taken three or four clutches of four from among two or three hundred nests seen. The eggs are quite typical Bulbuls' and probably the great majority could be matched by eggs of *Molpastes* and *Otocompsa*, but they certainly have a character of their own. A very common type, though not easily matched by eggs of other genera, has the ground a pale cream, with the whole surface minutely and profusely speckled with primary markings of light reddish and equally numerous secondary freckles of lilac-grey, on some eggs forming caps at the larger end. As a whole these eggs have a strong tint of violet or lilac which is very generic. From this type they range through light reddish-brown, light brick-red, light purplish-red to deep purplish-red or deep Indian-red-brown. Whatever the tint of the markings, however, their character is very constant, as is their distribution, though in many eggs the freckles almost coalesce to form very definite broad rings or caps. I have seen no eggs in which the freckles become blotches, and at a little distance and with only a casual glance many eggs look almost unicoloured.

I have seen only one pair of eggs with a white ground, and these are heavily freckled at the larger ends with purplish-red, forming almost unicoloured caps. Another unusual clutch has the ground pale cream stippled all over with pale pinky red. As a whole they are quite handsome eggs; though not nearly so varied in character of marking as are the eggs of *Molpastes c. bengalensis*, they are almost equally striking.

In shape they are rather long ovals, generally blunt at the smaller ends but, exceptionally, rather pointed. The texture is finer than in the eggs of *Molpastes* but the shell is equally fragile. Some eggs

have no gloss, the majority a fair gloss and a few quite a strong gloss.

One hundred and fifty eggs average 22.1×16.4 mm.: maxima 26.8×17.4 and 23.8×18.1 mm.; minima 18.7×15.2 and 21.8×15.0 mm.

Both parents take part in incubation but I have never been able to watch them building to see whether both birds share in the construction of the nest. They are shy birds in the breeding season and very difficult to watch, though in Winter, when in flocks, they do not seem to resent observation so greatly.

(409) ***Xanthixus flavescens vividus*** Stuart Baker.

THE MULEYIT YELLOW-WINGED BULBUL.

Xanthixus flavescens vividus, Fauna B. I., Birds, 2nd ed. vol. i, p. 393.

This race of Yellow-winged Bulbul is found over practically the whole of Eastern and Central Burma into Tenasserim, Southern Siam and the Malay States.

Harington found this Bulbul in Bhamo "the commonest Bulbul above 4,000 feet. Breeds during May and June and seems to prefer heavier jungle than *P. xanthorrhous*. It builds the usual type of nest and lays two eggs; I never found more."

Wickham records that he "obtained this Bulbul in the Chin(?), Kachin and Shan States. I have noted that a pair on the crags of Tounggyi took only six days to build their nest and lay two eggs complete. The nest was by no means an unsubstantial one. They appeared to me to always build very low down in thick bushes or even grass. End of April for fresh eggs."

Later, Wickham, in *epistola*, writes:—"They generally lay two eggs but I have taken three. The nest is like that of *Molpastes* but is compact and well built and always placed very low down."

The Chin Hill birds are, of course, true *flavescens*.

Cook also took nests, each with two eggs, on the 27th and 29th April, the nests apparently like those described by Wickham, whilst Harington took eggs in April, May and June, and Hopwood in March, April and May. The very great majority of eggs, however, seem to be laid in late April. The above are all the notes I can find on the breeding of this bird but they suffice to show that the nidification differs but little from that of the typical race. They may be summarized as follows:—

The bird is common and breeds freely from 4,000 feet upward in the Kachin Hills, Bhamo Hills and the ranges of Karenni, building a nest similar to that of *X. f. flavescens* and laying two or, rarely, three eggs any time from March to June, April being the favourite month. All nests are placed very low in brambles, bushes or even grass in fairly thick forest.

The eggs, of which I have a fair series, given me by the collectors referred to above, are quite like those of the Assam bird and go through the same range of coloration from pale to dark.

Seventeen eggs average 21.7×16.2 mm. : maxima 24.0×17.0 and 23.3×17.3 mm. ; minima 20.4×16.0 and 20.9×15.5 mm.

(410) *Otocompsa* * *jocosa emeria* Linn.

THE BENGAL RED-WHISKERED BULBUL.

Otocompsa emeria emeria, Fauna B. I., Birds, 2nd ed. vol. i, p. 394.

Elathea jocosa emeria, ibid. vol. viii, p. 614.

Our Indian bird is very close to the Chinese *O. jocosa jocosa* but is just separable. It is found in the Himalayas, Sikkim and Bhutan to Eastern Assam, North and South of the Brahmapootra, Bengal, the Northern half of Orissa, North Chin and Kachin Hills. Rothschild includes both *jocosa* and *emeria* in his 'Birds of Yunnan' (Nov. Zool. vol. xxxiii, p. 306, 1926) as occurring in that country. Admittedly the birds here are somewhat intermediate, though I should, on the whole, prefer to place them all with typical *jocosa*, recognizing the fact that in this intermediate area intermediate forms are to be met with.

The Red-whiskered Bulbuls are as much birds of houses and humanity as are their cousins with the red flannel seats to their trousers and are, if anything, even more confiding and even more restricted to the environment of towns, villages and cultivated areas. It is but rarely they will be seen in thin scrub, bamboo-jungles or the edges of forest at any distance from the above. They are found all over the inhabited parts of the plains and in the hills up to 7,000 feet, but any appearance over about 2,500 seems to be a desultory visit only, except in North Cachar, where they breed sometimes up to 4,000 feet. I have seen them more than once in Shillong, 5,000 feet, but this only for a day or two, and then they are gone.

In my own experience, as already stated, these Bulbuls are frequenters of inhabited areas, and their breeding excursions into jungle and forest are very rare. Hume, however, says that they sometimes breed quite away in the jungle, and it is interesting to note that Stevens also found them in winter "in heavy forest" in Upper Assam. In North Cachar they were common enough in evergreen forest, but only on the outskirts and only when the forest was alongside villages and clearances for rice and other cereal cultivation.

* In 'The Ibis' for October 1930, p. 678, Selater comments on my substitution of the name *Elathea* for *Otocompsa*, and shows that *Elathea* cannot be used for *Otocompsa* and should really be considered a *nomen nudum*. Though I am rather doubtful that I am wrong, it is a great pleasure to be able to accept his decision and revert to *Otocompsa*.

Probably more nests are found in gardens and parks and in the middle of villages and their immediate vicinity than anywhere else, but they are common enough in all cultivated or grazing country in which there are hedges, odd clumps of bushes or even long coarse grass. Adams found in Oudh the next race nesting in clumps of moong-grass, but a more curious site than this was one absolutely on the ground in quite short grass, found by myself. The nest was neatly hidden in among the roots of the grass but had no other support than the actual earth and grass-roots. Often they will make their nests in creepers over verandahs and sometimes even in the verandahs themselves, on the posts or in shrubs in pots. Hedges of Cacti in Upper Behar are common sites, small Mimosa trees are often made use of, but bigger trees, such as Tamarind, Mango etc., very seldom. Most nests are placed between 18 inches and 4 feet from the ground, a fair number both lower and higher, but not many over 15 or 20 feet.

The nest varies considerably. Hume says: "It is a typical Bulbul's nest, a broad shallow saucer, compactly put together with twigs of herbaceous plants, amongst which, especially towards the base, a few dry leaves are incorporated, and lined with roots and fine grass. Exteriorly a little cobweb is wound round to keep twigs and leaves firm and in their places." Most of the nests I have seen have also been fairly substantial but they have generally been rather deep cups, a rough average of their outside dimension, being about 4 inches across by nearly $2\frac{1}{2}$ inches deep. Flimsy, badly-built nests are, however, not rare, though our Bengal bird seems better in this respect than its cousin in the South.

The materials used differ a good deal, according to whatever suitable article may be handy. Leaves seem always to form a considerable portion of the nest; bamboo-leaves also, when these are lying close by, are popular; grass, roots, fibre of all sorts, bits of bracken and fern, creeper and weed-stems and, more rarely, moss, both green and dry, and lichen are all used in turn to a less or greater degree.

Generally they are placed in upright forks or among vertical twigs but, when placed in creepers, they are often pendent, the hanging creepers being worked into the sides of the nest. Cripps says that in Eastern Bengal cane-brakes form a favourite site, and those I have seen in this position are also occasionally pendent but, more often, built on the top of two or three canes.

As regards the breeding season, Hume gives March to the end of May, Cripps says March to May; Davison, who found it breeding in a low mangrove bush in the Andamans, took a nest in April. In Assam and Eastern Bengal I have taken nests from April to July, but May and June are the months in which most eggs are laid.

The number of eggs laid, in my experience, is three or four, one about as often as the other, and I have taken several clutches containing five eggs. On the other hand, I have but seldom found two eggs showing signs of incubation. Hume says that three

is the normal number but that he once took four. Adams never found more than three and on several occasions only two. In the Chin Hills, where they breed in March, April and May, Mackenzie and Hopwood found two to four eggs being incubated.

In colour the eggs go through just as great variety as do the eggs of the genus *Molpastes* and can be matched always by eggs of the various Red-vented Bulbuls. Taking large series into consideration, they are not quite so dark in colour and not quite so bold in blotching as the eggs of the Bengal Red-vented Bulbul. On the other hand, the very pale egg with nearly white ground and purple specklings is not nearly so common with *Otocompsa*.

Among abnormal eggs the following may be mentioned :—

(1) Pale purple white ground, densely freckled all over with pale neutral tint, the frecklings coalescing and forming a broad ring at the larger end ; (2) pale salmon ground almost concealed by large blotches of deep reddish-brown, running into one another.

Two hundred eggs average 22.2×16.2 mm. : maxima 24.1×16.0 and 23.6×17.1 mm. ; minima 19.0×14.5 and 20.2×14.4 mm.

In texture, shape etc. they are very similar to the eggs of *Molpastes*. Most eggs are quite glossless and few have the gloss at all highly developed.

Both birds incubate and both assist in building the nest.

I believe incubation takes twelve or thirteen days, whilst Cripps mentions an incomplete nest found on the 27th March which contained two young, just hatched on the 12th April, giving about the same time for the incubation period.

They are bold birds and, though perhaps they do not build their nests in quite such conspicuous positions as does the Red-vented Bulbul, they do not seem to make much attempt at concealment. Even the nests which, from their natural position, are well hidden are given away by the birds' actions, which are always fussy and noticeable when they have a nest near by. Often, when building in or near verandahs, the birds go about their work of building without paying any attention to people who may be sitting there, and will continue their task, fetching materials and working them into the nest within a few feet of the watcher.

(410 a) *Otocompsa jocosa provincialis* Whistler*.

THE KUMAN RED-WHISKERED BULBUL.

Otocompsa emeria emeria, Fauna B. I., Birds, 2nd ed. vol. i, p. 394 (part.).

Whistler restricts this new race to the "Valley of Nepal, United Provinces and Bihar."

The nidification, of course, differs in no way from that of the

* *Otocompsa jocosa provincialis* Whistler, Bull. B. O. C. vol. lii, p. 40, 1931. Kuman Bhabar. *Distribution*. Nepal, U.P. and Behar. This is a very doubtful subspecies but Mr. Whistler must have had more material than I had for comparison, so that I include it for the present.

Bengal bird, from which I could not distinguish it. Adams found it "very common in Oudh. It affects gardens and low scrub jungle, flying about with a jerky flight from bush to bush.

"They build in clumps of moong-grass about 2 to 3 feet from the ground. One I found in a creeper about 20 feet from the ground. The nest is well fixed in the grass and fastened to it by intertwining some of the fibres of which it is composed. It is cup-shaped and measures 4 inches in diameter, about 0.75 in thickness, with an egg-cavity 2.75 in diameter and 1.5 inch deep.

"The nest is formed of roots, twigs and grass loosely worked together, and, over the exterior, with a view of binding the nest together, dried or skeleton leaves, pieces of cloth, broad pieces of grass, and plantain bark are carelessly fastened on by means of cobwebs and the silk from cocoons.

"I have never found more than three eggs; on several occasions only two."

Whymper found them breeding in some numbers in the Kuman Terai at about 2,000 feet, "nesting in low bushes and where the long grass was mingled with the bush."

The eggs are just like those of the last bird and the few I have been able to measure average about 20.6×15.6 mm., but a bigger series would probably give a bigger average.

(411) *Otocompsa jocosa fuscicaudata* Gould.

THE MADRAS RED-VENTED BULBUL.

Otocompsa emeria fuscicaudata, Fauna B. I., Birds, 2nd ed. vol. i, p. 396 (part.).

Otocompsa jocosa fuscicaudata, *ibid.* vol. viii, p. 613 (part.).

Practically the whole of Southern India South of the ranges of the two last races and omitting Mt. Abu and the neighbouring parts of Rajputana (Ajmere, Nasirabad).

This is probably the most common of all birds in Southern India from the plains up to the highest hills wherever there is open country, towns, villages or cultivated lands. In Travancore it occurs up to 6,000 feet according to Ferguson, Bourdillon and Stewart, while on the Nilgiris, Palni Hills and other ranges it seems to wander higher still.

It frequents gardens, parks and any kind of open land about villages and towns. In Tea-gardens and Coffee-plantations it is excessively common, breeding in the Tea- and Coffee-bushes.

It nests in all kinds of places but chiefly in low bushes two to four feet from the ground and sometimes up to six feet. Col. R. H. Baker and Inglis ('Birds of S. India' p. 26) record two nests taken on the ground. One taken by Baker himself "at about 5,000 feet, placed in a bank at the side of a steep zig-zag path through a coffee plantation," the other also taken in the Nilgiris

by Mr. T. N. Wapshare, in a similar position. They often breed in trellises and creepers over houses and verandahs and Darling says that "in a friend's house in the Wynaad there were three nests built on the wall-plate of the verandah and two eggs laid in each nest. The young were safely hatched.

"This year the nests have been rebuilt and contain eggs. As I am writing, there are two pairs building in a rose-bush about 3 yards from me. They breed from the 15th February to the 15th May."

Hume sums up the breeding habits of the common Bulbuls, with descriptions of the nests, in a most interesting paragraph, which I quote in full:—

"They breed any time from the beginning of February to the end of May. The nests are usually placed at no great height from the ground (say from 2 to 6 feet) in some thick bush.

"The nests that I procured of this species from Mt. Aboo *, and which have been sent me by Mr. Carter from Coonoor and Salem, and by other friends from other parts of the Nilgiris, where the bird is excessively common, very much resemble those of *O. emeria*, but they are somewhat neater and more substantial in structure. They differ a good deal in size and shape, as the nests of Bulbuls are wont to do. Some are rather broad and shallow, with egg-cavities measuring $3\frac{1}{4}$ inches across, and perhaps 1 inch in depth, while others are deeper and more cup-shaped, the cavity measuring only $2\frac{1}{2}$ inches across by fully $1\frac{1}{2}$ inch in depth. They are composed in some cases almost wholly of grass-roots, in others of very fine twigs of the furash (*Tamarix furax*), in others again of rather fine grass, and all have a quantity of dead leaves or dry ferns worked into the bottom, and all are lined with very fine grass or very fine grass-roots. The external diameter averages about $4\frac{1}{2}$ inches but some stand fully 3 inches high, whilst others are not above 2 inches in height. As might be expected, the White-cheeked and White-eared and the two Red-whiskered Bulbuls' types of architecture differ considerably; *inter se*, the nests of *M. leucotis* and *M. leucogenys* differ just sufficiently to render it generally possible to separate them, and the same may be said of the nests of *O. emeria* and *O. fuscicaudata*. But there is a very wide difference between the nests of the two former and the nests of the two latter species, so that it would be scarcely possible to mistake the nest belonging to the one group for that of the other. The incorporation of a quantity of dead leaves in the body of the nest is characteristic of the Red-whiskered Bulbul, and is scarcely to be met with in those of the White-cheeked or White-eared ones."

The nest, however, is by no means always substantial and many observers have commented on its frailty.

Bates, referring to one of the subjects of his photographs, writes:—"The owner of the jerry-built Southern Red-whiskered Bulbul's

* From this place, of course, they would be nests and eggs of Whistler's *abuensis*, the race which is dealt with in this work after the present form.

nest provided me with considerable entertainment. The nest, as one can see, was built with the usual disregard for durability and concealment and the usual want of forethought displayed by many species of Bulbul. All the support being on one side only, the increasing weight of the fast-growing youngsters was causing it to heel over to an increasingly perilous angle every day.

"The bravery of the bird I took to be the female was really most amazing. On my discovery of her treasures she retreated but to a twig within a few inches of the nest and danced there in a perfect fury, swearing and spitting like an infuriated Lynx, and, when I presumed to put my fingers into the nest and snap off one or two twigs which were in the way, it really looked as if she was about to attack my hand."

The disregard by this Bulbul of all attempts at concealment leads to an appalling mortality among the eggs and young, which are greedily eaten by many other birds, lizards, snakes and four-footed vermin.

In the Western Ghats Davidson says they are less remiss in this respect, and the nests he took in March and May "were placed in bushes 2 to 4 feet high, some of them most carefully concealed among thorns."

The breeding season seems to be mainly in February, March and April but they almost certainly have two or more broods in the year, for Cardew found them breeding in July and Betham saw many nests with eggs in August.

In and round Madras Packard took eggs in February and again in May. In Travancore Stewart and Bourdillon took many nests from February and March up to the end of July.

The normal number of eggs laid is two or three but I have two fours, one taken by Col. Wilson in May in Madras and one by Barnes at Khandalla, also in May.

The eggs are typical *Otocompsa* eggs but, on the whole, they vary very little. My eggs of this race, with very few exceptions, like Hume's, "all belong to one type of egg. Almost all have dull pinkish or reddish-white ground, very thickly freckled, mottled and streaked all over with a rich red; in most blood-red, in others brick-red, underneath which, when closely looked into, a small number of pale inky purple spots are visible. In half the number of eggs the markings are much denser at the larger end; these eggs are all more brightly and more intensely coloured than any of those that I possess of *M. leucotis*, *M. leucogenys* or *O. emeria*; they are, moreover, larger than any of these."

All the above would do well for the description of my own series, only I should have left *O. emeria* out of the last two lines as, really, taking them as series, there is not very much between the eggs of *emia* and *fuscicaudata*, though as a whole the latter are the richer.

A few rather unusual types consist of (1) eggs very much like those of *Xanthixus flavescens* and, like them, curiously enough, very long in shape; (2) bright pink, closely speckled all over with bright

pale brick-red ; (3) eggs densely freckled all over with purple-red and with such numerous secondary specks showing through that the eggs look an almost uniform reddish-purple.

Most eggs are broad, short ovals in shape ; the texture is smooth but not very fine, and there is either no gloss on the surface or only a slight one.

One hundred eggs average 21.4×16.1 mm. : maxima 25.4×15.8 and 21.4×17.6 mm. ; minima 19.3×14.3 mm.

There seems to be no information on record as to whether both birds take part in the construction of the nest, or which sex carries on incubation, two very easy questions to settle with so common a bird, and which should soon be answered now attention has been drawn to them.

According to F. N. Betts (Journ. Bomb. Nat. Hist. Soc. vol. xxxv, p. 1026, 1931) the period of incubation is only eleven days, which seems a very short time in comparison with the size of the bird and the egg. This information is given in a most excellent account of the habits, nidification etc. of the Bulbuls of the Nilgiris, and those who would like further details of these should refer to the article, which is full of information.

(411 a) *Otocompsa jocosu abuensis* Whistler.

THE MOUNT ABU RED-WHISKERED BULBUL.

Otocompsa emeria fuscicaudata, Fauna B. I., Birds, 2nd ed. vol. i, p. 396 (part.).

Otocompsa jocosu fuscicaudata, ibid. vol. viii, p. 614 (part.).

This bird has been so recently separated that, naturally, there is no information in regard to it separated from that given for *O. j. fuscicaudata*.

Whistler, who has named it, confines it to Mount Abu and Rajputana (Ajmere and Nasirabad).

A note by Captain Butler in Hume's 'Nests and Eggs,' p. 182, obviously applies to this subspecies. He writes :—

"The Red-whiskered Bulbul is common at Mount Aboo and breeds in March, April and May. The nest is usually placed in low bushes from 4 to 8 feet from the ground, and is a neat cup-shaped structure composed externally of fibrous roots and dry grass-stems, and lined with fine grass, horsehair etc. Round the edge and woven into the outside I have generally found small spiders' nests looking like lumps of wool. The eggs, usually two but sometimes three in number, are of a pinkish-white colour, covered all over with spots and blotches and streaks of purplish or lake-red, forming a dense confluent cap at the large end. A nest I examined on the 24th April contained two nestlings almost ready to fly.

"On the 3rd May, 1875, I took a nest in a low carinda bush containing two fresh eggs."

I have a few notes from Rajputana but, without the birds, it is impossible to say to what form they refer, as Whistler gives no indication of how much of Rajputana the new subspecies covers. It is not safe, therefore, to give them as referring to either of the two races.

(412) *Otocompsa jocosa peguensis** Stuart Baker.

THE BURMESE RED-WHISKERED BULBUL.

Otocompsa emeria peguensis, Fauna, B. I., Birds, 2nd ed. vol. i, p. 396.

Otocompsa jocosa peguensis, *ibid.* vol. viii, p. 613.

The Burmese Red-whiskered Bulbul has a very wide range, being found over practically the whole of Burma, from the Chin and Kachin Hills, through Arrakan and all the central hills of Burma, South to Tenasserim and East to Siam and the Shan States. It is also found and is very common in the Andamans and Nicobars.

There is not much on record about the breeding of this Bulbul, common and wide ranging though it is.

J. P. Cook took nests in Pegu, where it seems to be a bird of gardens and villages; Hopwood took them both in Akyab and Tharrawaddy, whilst Osmaston found them very numerous in the Andamans.

Osmaston, *in epistola*, writes:—" *Otocompsa emeria* in the Andamans is not found in the dense evergreen forest which covers a large proportion of the islands. It is a bird of the open forest and near the shores, where it gets plenty of sun. It is especially common in and around Port Blair, where many square miles have been cleared of original forest and are now under cultivation. Its nest is placed in a shrub, small tree or creeper and is a flimsy but neat shallow cup composed of fine twigs and roots, consolidated and fixed in position with cobwebs which are smeared into the twigs of which it is composed. In Port Blair they almost take the place of Sparrows, frequenting verandahs of houses, where they often breed in creepers, etc., and are extremely tame and fearless."

The breeding season over most of Burma is March, April and May but eggs may sometimes be taken earlier and often much later.

The full clutch is two or three only, more often two than three and, apparently, never four.

In the Andamans Osmaston found them breeding in April and May, most birds laying in the former month.

The eggs are quite indistinguishable from those of *Otocompsa j. jocosa* and *O. j. emeria*.

Forty-five eggs average 20.7×15.4 mm.: maxima 22.1×15.5 and 22.0×16.0 mm.; minima 19.9×15.3 and 20.3×14.8 mm.

* It is possible that the name of this race, according to Kloss, should be *Otocompsa jocosa erythrotis* (Bonnaparte, *Consp. Gen. Av.*), which, however, he describes as "ex Java." One would expect the name, therefore, to apply to the Chinese or more Eastern forms and certainly not to Pegu birds, so, as far as I can see, my name must stand.

Otocompsa flaviventris.

THE BLACK-CRESTED YELLOW BULBUL.

(413) **Otocompsa flaviventris flaviventris** (Tickell).

THE HIMALAYAN BLACK-CRESTED YELLOW BULBUL.

Otocompsa flaviventris flaviventris, Fauna B. I., Birds, 2nd ed. vol. i, p. 397.

This handsome Bulbul occurs as far West as the Sutlej Valley and all along the Outer Himalayas to the East of Assam. It is also found in the forests of the Central Provinces, Orissa, South of the Mahanadi, Eastern Bengal, the hills and plains South of the Brahmapootra, all Burma South to Tenasserim, Siam, Shan States and Yunnan.

The Yellow Bulbuls are birds both of the forest—the thicker the better so long as they have ample undergrowth—and of open country, the vicinity of villages and, sometimes, even of gardens. They are also often found breeding in secondary growth and sometimes, but not often, in mixed scrub- and bamboo-jungle. Occasionally they breed round villages in the half-grazed and trampled-down grass where the buffaloes feed but, in these cases, the grass has to be well mixed with bushes and odd trees standing here and there either singly or in clumps. They ascend the Assam Hills up to 4,000 feet and rarely for 1,000 feet higher, but their favourite breeding range is between 1,500 and 2,500 feet. Whymper obtained them up to about this elevation in the Nepal Terai, whilst Stevens says that they are widely distributed in Sikkim from low levels up to 5,000 feet.

They nest low down, 2 to 4 feet from the ground, almost invariably in low bushes, brambles creepers etc.; occasionally a nest may be found in a small sapling or in creepers growing over a tree as much as 6 or 8 feet up. A very favourite situation with this, as with so many other birds, is a tangle of Raspberry or Blackberry vines.

The breeding season is from the end of April to the end of June, but so very few nests have been taken outside the Assam Hills that it is difficult to generalize.

The earliest eggs taken by myself were on the 24th March, the latest on 3rd September, but it is very rare to find any after June. Some birds may have two broods.

In the Chin Hills most birds seem to breed in April, whilst in Assam most lay in May.

A nest taken on the Great Rungeet River by a native for Captain Bulgar, and said to have been of this species, may or may not have been correctly identified; the eggs are not typical and I pass them over.

Wardlaw Ramsay says that he "found a nest containing two eggs in April at the foot of the Karen Hills."

In Assam this Bulbul is very common and I have taken numerous nests. During the breeding season they are quite common in the foot-hills and broken ground adjoining them, nesting in Tea-gardens and other suitable places, and I have seen nests from these levels up to 5,000 feet.

I can add little to my original description of this bird's nidification (Journ. Bomb. Nat. Hist. Soc. 1892, p. 2):—

"The first nest I ever saw was built in an old orange-tree in my garden. When found it contained an egg, so that I cannot tell what time was taken in its construction, beyond the fact that it took under twenty-five days, that being the time I had been away in camp, as, when I went out, it had not been commenced. It was a very neat nest and, for the size of the bird, very small. The outer part of the walls was composed entirely of dead orange-leaves, all these being of different tints of olive-yellow and bright olive-brown, much the same colour, as a whole, as the upper plumage of the bird. These leaves were wound round and interlaced by rather thick shreds of bark, one or two elastic twigs and a single stalk of some weed; in addition, it was further strengthened by cobwebs here and there all round. Inside this outer wall was a rough lining of coarse grass-stems, fine twigs and fern-roots, and within this again was the true lining, consisting entirely of mithna hair, easily recognized by its deep purple tint. This nest was in every way but one quite a typical specimen, the exception being in the lining. This is, in nine cases out of ten, composed only of the finer stems of tan-coloured grasses, whilst in the tenth case it may be of fine moss-roots or some other vegetable fibre.

"The nest, rather smaller than usual, measured:—Diameter at the broadest part 4"; at the top, where there are no leaves, just under 3"; in depth about $1\frac{1}{2}$ " and, internally, $1\frac{3}{4}$ " by $\frac{3}{4}$ ". The contrast of the bright yellow leaves with the green of the bush was very marked and the nest could be seen from a long way off, looking like an orange. A few nests are made chiefly of coarse grass and twigs, only a few leaves being worked into the base, while one or two other nests, taken by me, have differed from the nests of *Molpastes bengalensis* only in their smaller size, though even in these the major part of the materials were light-coloured. The lining is generally very neatly made, the grass-ends being carefully tucked in, whereas in the nests of Blyth's Bulbul the ends always project from the nest for a good distance.

"The internal measurements of ten nests average $2.2" \times .94"$.

"An extraordinary nest found by me in 1888 was a broad shallow cup, not half an inch deep, with the whole lining and a great part of the outer walls as well, made out of white goat's hair. This was built in a bush, the leaves of which had white under sides, so that the nest was not conspicuous.

"The site selected is, so far as I am aware, never one in dense jungle; the bird prefers thin scrub jungle, scattered bushes, and even the outskirts of villages and rice-fields."

Since this was written I have taken several nests in evergreen forest, but I can add nothing further to the descriptions of the nests.

Both birds take part in incubation, which, I believe, takes thirteen days.

They lay three or four eggs, never five, and sometimes only two. The ground-colour is a faint pinkish-white, varying little in depth but occasionally a deep pink; typically they are covered with numerous freckles of dull lilac-pink, dull reddish or a reddish-pink, with other secondary freckles of pale grey, giving a lilac tinge to many eggs. Both primary and secondary markings are usually numerous over the whole egg but, in many eggs, they form pronounced rings round the larger end or, less often, caps. In some eggs there are a few exceedingly fine lines, the colour of clotted blood, which are always confined to the larger end.

Unusual types of eggs are (1) ground-colour pale pink, the whole almost obliterated by innumerable freckles of pinky red; (2) the same, but the specks of deep red.

The markings are *always* small and I have seen no eggs in which they could justly be dignified by being called blotches.

One hundred eggs average 22.3×16.5 mm. : maxima 24.2×16.4 and 21.9×17.2 mm. ; minima 20.5×16.8 and 23.1×15.3 mm.

(414) *Otocompsa flaviventris minor* Kloss.

THE MALAYAN BLACK-HEADED YELLOW BULBUL.

Otocompsa flaviventris minor, Fauna B. I., Birds, 2nd ed. vol. i, p. 398.

How far this bird wanders North in Burma has not yet been defined. It is found throughout peninsular Tenasserim, Siam and the Maly Peninsula.

Bingham found the nest of a Black-headed Yellow Bulbul in Tenasserim which must have been of this race. He writes:—"Common enough in the Thougyeen forests, affecting chiefly the neighbourhood of villages and clearings. The following is a note of finding the nest and eggs I recorded in 1878:—On the 14th April I happened to be putting up for the day in one of the abandoned Karen houses of the old village of Podeesakai at the foot of the Warmailoo Toun, a spur from the East watershed of the Meplay river. I had returned tired, from a search for bears, and was moving about among the ruined houses, between and among which a lot of jungle was already springing up, when, just as I passed a low bush about 3 feet high, out went one of the above-mentioned birds; of course the bush contained a nest, a remarkably neat-shaped affair, below and outside of fine twigs, then a layer of roots, above which was a lining of the stems of the flower of the "theckay" grass."

Mackenzie describes a nest as "a shallow cup smaller than most Bulbuls', of dried leaves, roots and moss-roots, lined with rather finer roots and grass; a loosely put together but rather strong

nest. External measurements $3\frac{1}{2} \times 2\frac{3}{4}$ inches; internal $2 \times 1\frac{3}{4}$ inches. The nest was placed 10 feet up in some brambles on the bank of the river. Another nest was found containing three young birds on the 2nd of April, nearly fledged. This nest was built in a bush about 3 feet high. In the first nest, which was taken on the 27th March, there were two eggs only." These nests were taken by Mackenzie in Tenasserim.

Mr. E. G. Herbert found this bird not uncommon in South-West Siam and took several nests. On one occasion, the 25th May, he took three nests, each containing two eggs, which he gave to me.

The eggs are like poorly-coloured eggs of the preceding bird and, as with them, none have blotches, the most one could call the markings being large freckles. In one pair of eggs there are distinct caps, the markings, more especially the secondary grey ones, almost coalescing at the larger end. In the other eggs the freckles are slightly more numerous at the larger ends but there are no indications of caps or rings.

Ten eggs average 21.6×15.6 mm.: maxima 22.3×15.4 and 22.1×16.1 mm.; minima 21.0×16.0 and 21.1×15.0 mm.

It is interesting to see that this small series of eggs does corroborate the division of the species into two races on the ground of size, although it would not be safe to generalize on so small a number.

Spizixos canifrons.

THE FINCH-BILLED BULBUL.

(416) **Spizixos canifrons canifrons** Blyth.

THE ASSAM FINCH-BILLED BULBUL.

Spizixus canifrons canifrons, Fauna B. I., Birds, 2nd ed. vol. i, p. 400.

This curious, but handsome, Bulbul is very common in the Hills South of the Brahmapootra in Assam between 2,500 feet and the highest forest-covered peaks of the Barail and other ranges, breeding freely between 3,000 and 6,000 feet. In the Chin Hills it is almost equally common at similar heights. Further East they stretch to Yunnan, where Forrest obtained a big series of birds between 6,000 and 9,000 feet, whilst Harington found them fairly common in the Bhamo Hills at about 5,000 feet upwards.

In Assam it frequents both open and dense forest but it is most common in places near the peaks of hills between 4,000 and 6,000 feet where there are patches of forest interspersed with open spaces of rock and grass, small stretches of scrub- and bush-jungle or the thick growth which soon appears on deserted rice-fields. In Sinlum Kaba, in Bhamo, they appear to breed in country of much the same kind but, possibly, still more open.

The first nests I found were nearly all in rather high bushes and small saplings between 5 and 10 feet up. This was in 1892 but, later, when I got to know the birds and their ways better, I found that far more nests were placed in bushes etc. under 5 feet rather than over, though the latter, being the more conspicuous, were the easier to find. They seem to be especially fond, for nesting purposes, of matted creepers and tangled vines growing either in a dense mass close to the ground or climbing over bushes or up trees. I have also found them in clumps of sturdy weeds and, more than once, in Raspberry vines growing in thick beds of stinging-nettles, which were very common in the Laisung Valley, growing as high as five feet and effectually keeping out four-footed vermin. Pershouse and Harington both remark on the affection displayed by the birds for tangles of wild raspberries for their nests, all of which were placed quite low down in them. In the Khasia Hills, where they are one of the birds which breed in the Pine-woods, they may place their nests either in tall scraggy bushes, densely foliated Rhododendrons and Azaleas, in Daphne-bushes or, most often of all, in Blackberry and Raspberry bushes.

The breeding season is May, June and July in Assam but I have taken eggs in April also. My earliest recorded nest with eggs is the 16th April, the latest 24th July. I do not think they have two broods.

The nest is one which cannot be mistaken for that of any other bird breeding in India known to me. The nests of some of the birds of the genus *Ianthocincla* bear some resemblance to them but their size alone is at once sufficient to distinguish them.

The Finch-billed Bulbul uses one material, and practically one material only, for its nest, and that is a quantity of the small curly tendrils of Convolvuli, looking like long narrow corkscrews; other tendrils may be, and probably are, used but I cannot distinguish any—they all seem alike, though they vary in coarseness and elasticity. The most coarse and the most curly are used for the outer part of the nest and the finest, though not necessarily the least curly, are used internally and must, one would think, be very uncomfortable for the young when hatched. I have seen odd scraps of bracken in a few nests as lining and in a few other nests a few fine twigs have been incorporated, but the nests have generally to be broken up and examined before these can be found. An interesting feature I have noticed in many nests is that the bird seems to select reddish tendrils for the lining and brown ones for the body of the nest. The inner measurements of the nest are generally between $2\frac{1}{2}$ and 3 inches in diameter by about 1 in depth; the outer measurements are impossible to give, as the ends of the tendrils stick out in every direction.

The full clutch of eggs is two or three—two, probably, rather more often than three—though I have taken one or two fours. In Burma, round about Sinlum Kaba, Harington never took more than two

eggs in a nest but Pershouse was more fortunate and took clutches of three in the same place in the Bhamo Hills.

The eggs are quite distinctive and do not vary normally much in colour. The ground-colour is always a dull pink, in some eggs quite pale and rather creamy and ranging from this to a warm reddish-pink. The markings consist of numerous freckles, in a few they might almost be called blotches, of pinkish-red to deep brownish-red. In an occasional clutch of eggs the ground-colour shows up rather boldly but in most it is more or less covered with the freckles, and in some these are so thick that the eggs look an almost uniform dull deep mottled-red. In the great majority of eggs the markings are more numerous, often confluent, at the larger end, where they sometimes form well-marked caps or rings. The underlying blotches, often difficult to detect, are of inky purple and, though difficult to see, are sometimes sufficiently numerous to give a dull purplish tint to the egg.

Two pairs of very unusually marked eggs in my collection are almost pure white stippled with pinkish-red, fairly heavily at the larger end and very sparsely elsewhere. These eggs could be matched with some of *Molpastes*, though unusual even for them.

In shape the eggs are long ovals, generally obtuse, rarely rather pointed at the larger end. The texture is not very fine or close, the egg-surface having a smooth, soft appearance but with no gloss except in very few cases.

One hundred eggs average 25.7×17.6 mm. : maxima 29.0×17.0 and 26.0×19.3 mm. ; minima 22.2×17.8 and 24.0×16.1 mm.

(417) *Hemitarsus zeylonicus* Gmelin.

THE YELLOW-CROWNED BULBUL.

Trachycomus ochrocephalus, Fauna B. I., Birds, 2nd ed. vol. i, p. 402.

Hemitarsus zeylonicus, *ibid.* vol. viii, p. 615.

This Bulbul is found throughout peninsular Burma and Siam to Sumatra, Java and Borneo.

The only note on this Bulbul's breeding is that in Hume's 'Nests and Eggs' by Mr. J. Darling, junior, who writes:—"I found the nest of this bird in July at Kossoom. The nest was of the usual type but much larger, and like a very shallow saucer. The foundation was a single piece of some creeping orchid, 3 feet long, coiled round; then a lot of coils of fern, grass and moss-roots. The nest was 4 inches in diameter on the inside, the walls $\frac{1}{4}$ inch thick, and the cavity 1 inch deep. It was built 10 feet from the ground, in a bush in a very exposed position, and exactly where any ordinary Bulbul would have built.

"The eggs of this species are of the ordinary Bulbul type, rather broad at the large end, compressed and slightly pyriform, or more or less pointed towards the small end. The shell fine and smooth, but with only a moderate amount of gloss. Their ground-colour

varies from very pale pinky white to a rich warm salmon-pink. The markings are two colours: first a red, varying from a dull brownish to almost crimson; the second, a paler colour, varying from pale neutral tint through purplish grey to a full though pale purple. As for the markings, they are generally the most dense, in a more or less confluent mottled cap, round one end, generally the largest, and are usually more or less thinly set elsewhere. In some eggs all the markings are rather coarse and sparse, in others fine and more thickly set.

"Two eggs measured $1.06 (=26.9 \text{ mm.}) \times 0.75 (=19.0 \text{ mm.})$ and $1.03 (=26.1 \text{ mm.}) \times 0.73 (=17.5 \text{ mm.}).$ "

Hume evidently had a great many more than two eggs to generalize on, as he (or Darling) does, but there is nothing to show how many or where they came from, or by whom they were obtained.

Iole malaccensis.

THE STREAKED BULBUL.

(418) *Iole malaccensis malaccensis* (Blyth).

THE MALACCAN STREAKED BULBUL.

Iole malaccensis malaccensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 404.

The present form of Streaked Bulbul is a low-level resident in Tenasserim, peninsular Siam and the Malay Peninsula. Apparently, also, in Cochin China.

I know nothing about the breeding of this bird beyond what is contained in the following note sent me by Mr. W. A. T. Kellow from Perak, in the Federated Malay States, together with a nest and two eggs:—

"The nest was taken at a place considerably inland from Perak and was placed in a horizontal fork of a high bush, well bound to the supporting twigs with cobwebs. It was taken on the 17th June, 1907."

The nest sent me with the eggs is a shallow saucer made of fine twigs, a leaf or two and some grass, lined with fine roots and well covered outside with spiders' webs.

The two eggs are of the *Iole icterica* type, the ground-colour pale bright pink freely speckled all over with pale pinkish-red, slightly more numerous at the larger end but not forming a cap. There are a good many secondary indistinct freckles of pale neutral tint, rather more numerous also at the larger end, where they give, more in one egg than in the other, a sub-grey tinge to the red markings.

In shape the eggs are an ordinary oval. The texture is finer and closer than in most Bulbuls' eggs and there is a slight but quite distinct gloss.

The two eggs measure 23.1×16.9 and $22.1 \times 16.5 \text{ mm.}$

(419) *Iole icterica* Strickl.

THE YELLOW-BROWED BULBUL.

Iole icterica, Fauna B. I., Birds, 2nd ed. vol. i, p. 405.

Iole icterica is found almost throughout the South-Western side of India from about Mahabeswar to Cape Cormorin and in the greater part of Ceylon. In India it occurs from almost the level of the plains up to 6,000 or, perhaps, 7,000 feet, though Mr. F. N. Betts says that in the Nilgiris it does not ascend over 4,500 feet. He adds:—"It is almost confined to the heavy evergreen jungle which covers so much of the slopes of the hills." In Travancore Bourdillon says that this Bulbul "is confined to the Hills, where it frequents forest. I have seen it at all elevations from the foot to 2,000 feet in the South; above this in Pirmerd and the Cardamon Hills and still higher in the High Range."

Stewart found them in Travancore, chiefly at about 1,000 feet, breeding in mixed jungle and in thick forest. Davidson, writing of Kanara, says that it "is found all over the district with the exception of the extreme North-Western portion. It is locally common, but keeps generally in the vicinity of evergreen jungle. I have taken very many of its nests, generally suspended between two twigs on a small tree from eight to twenty feet from the ground but, occasionally, in the branches of a large tree." Finally, in regard to Ceylon, W. E. Wait notes ('Birds of Ceylon,' p. 56):—"Restricted to forest and high jungle throughout the low country and up to about 4,000 feet or even higher."

H. Wait describes the nest of this Bulbul in the Nilgiris as follows:—"This bird, though very common in the Nilgiris at elevations from 4,000 to 5,000 feet, is a very shy nester, and its nest, which is not easily found, is, as far as my experience goes, invariably placed on the top of young thin saplings at heights of from 6 to 10 feet from the ground. The saplings chosen are almost always in thick cover near the edge of dry water-courses. They generally lay in May but I have found nests in March. In shape the nest is a moderately deep cup, nearly hemispherical, with an internal diameter of from $2\frac{1}{2}$ to 3 inches—a true Bulbul's nest, composed of grass and bents and lined with finer grasses. The nest is always suspended by the outer rim between two lateral branches, and never, I believe, built in a fork, as is so common in the case of many other Bulbuls."

Hume adds that in nests sent to him by Mr. Wait there are a few leaves and that some are made of excessively fine twigs.

Miss Cockburn gives a similar description to that of Wait but says some of the nests are so thin that it is possible to see the eggs through the bottom.

Legge describes a nest taken in Ceylon as, apparently more substantial than those described above:—"Large for the size

of the bird, the foundation being bulky and composed of small twigs, moss and dead leaves, lined with fine roots; the upper edge of the body of the nest was woven round the supporting branches. The bottom of the nest was in the fork."

The breeding season in Ceylon is during the first half of the year but eggs have been taken in August, and Phillips has sent me eggs taken by him in September. This nest, it should be noted, was not like the one described by Legge, but was a suspended cup made of wiry grass-stems and rather flimsy. In Travancore Stewart took their eggs in March and April; in Kanara Davidson and Bell obtained eggs from February to May; whilst Kinloch took them in the Nelliampatti Hills in February.

The normal full clutch is two only, but three eggs are laid fairly frequently.

The eggs are all of one type, though they vary greatly in depth of colour. The ground-colour varies from a very pale creamy pink, almost white, to a warm salmon-pink. The markings consist of innumerable specks, freckles or, in a few cases, very small irregular blotches, ranging in colour from the palest reddish-pink to a rich light red. The markings, of whatever size, cover the whole egg, generally slightly more numerous at the larger end, though very rarely forming a cap.

Two clutches in my series are worth recording separately. One is perfectly white, similar to a clutch of three taken by Miss Cockburn, with just a few faint specks at the larger end. The other clutch are bright salmon pink eggs with deep chestnut spots and inky secondary blotches. These are very extraordinary eggs and can be matched by some of those of *Malacocincla abbotti*, which bird, however, is not to be found within 1,000 miles of Ceylon, where these were taken.

Thirty-six eggs average 23.1×16.6 mm. : maxima 25.0×17.2 mm.; minima 21.3×16.3 and 22.0×15.5 mm.

Iole virescens.

THE OLIVE BULBUL.

(420) *Iole virescens virescens* Blyth.

THE ARRAKAN OLIVE BULBUL.

Iole olivacea virescens, Fauna B. I., Birds, 2nd ed. vol. i, p. 406.

Iole virescens virescens, ibid. vol. viii, p. 615.

This Bulbul, which was first found in Arrakan, extends North through the plains and foot-hills of the Chin Hills to the Cachar Hills, Sylhet and Tippera, whilst South it is found throughout the plains and lowest hills of the Pegu Yomas.

It does not, so far as I know, occur in the Khasia Hills, nor along the various Naga Hills ranges to Lakhimpur.

I have no information about the nidification of this bird beyond my notes in 'The Ibis' for 1895, p. 332, which I quote :—

"I have seen very few nests of this, the Olive Bulbul, and those which I have seen have all been so precisely alike that a description of any one would do equally well for any of the others. They are of the same type of nest as that of *Molpastes bengalensis*, but are stouter, compacter, and much more bulky, owing to more material being used in their construction and, of the five nests I have seen, none have been in the least degree transparent, as the nests of that bird so often are. The chief article used in each nest consisted of long, tough strips of the inner bark of a dark-coloured tree, mixed with a few scraps of the outer bark, and a good many twigs, the latter all being very fine and elastic. In four nests there were a good many small dead leaves fastened into the outside of the base and walls, and in all five nests numerous cobwebs were used, both to attach the nest to its support and to hold the materials together. The lining in each nest is formed of black fern-roots and of long reddish fibres, the tendrils of some creeper, probably the convolvulus already alluded to elsewhere. In three nests the fern-roots form the greater part of the lining, in the others the tendrils. Outwardly the nests average in diameter about $4\frac{1}{2}$ inches and in depth about 2·2", the measurements of the egg-cavity being about 2·5" \times 1·1".

"The first two nests I took were placed in forks formed by a number of twigs sprouting horizontally from a thin branch which stretched well out and away from the parent bushes, very tall and straggly ones, the nests being some $4\frac{1}{2}$ feet above the ground. Both nests were very firmly affixed to the twigs, a considerable portion of these being well covered by the materials of which the nests were made; both nests were visible from some yards away. Another nest was found in much the same position, and a fourth differed only in that it was placed in among a vertical bunch of twigs. A fifth, which was brought to me, looked as if it had been placed in a stout upright fork.

"All the nests were taken in the interior of low-lying forests, in most places rather scanty and with a considerable amount of straggling undergrowth, here and there interrupted by long stretches of sun-grass. The most noticeable thing about the nests was the extreme neglect of all concealment, they not only being built on branches devoid of foliage but bushes being selected which stood in comparatively open ground, in two cases just beside well-worn gaur and buffalo tracks." In fact the first nest was found when, whilst tracking up a wounded gaur, a bird flew out almost at my head and, looking up, I saw the nest. Waiting a few minutes, the bird returned and settled on her nest within a few feet of me. Every gaur and buffalo which passed along the path

must have brushed against the nest, and it seemed impossible that it could escape destruction. I would have knocked my own head against it had I not been stooping low, examining the tracks.

Three eggs is the complement laid and these are very much like the small, speckly type of *Molpastes* egg and are half-way between these and *Iole icterica* eggs but, apparently, never of the pinky-red type of the latter.

All my eggs were given away except one clutch of three which measure 23.1×16.3 , 22.2×16.5 and 22.4×16.2 mm.

***Pycnonotus goiavier*.**

THE YELLOW-VENTED OLIVE BULBUL.

(425) *Pycnonotus goiavier personatus** Hume.

THE MALAYAN YELLOW-VENTED OLIVE BULBUL.

Pycnonotus goiavier analis, Fauna B. I., Birds, 2nd ed. vol. i, p. 410.

Pycnonotus goiavier personatus, ibid. vol. viii, p. 616.

As Kloss restricts the form of *analis* to Java and Borneo, the distribution of our bird is limited to peninsular Tenasserim and Siam, the Malay States and Sumatra.

It is a very common bird in Sumatra, taking the place of our Indian *Otocompsa jocosa* round villages and houses.

Mackenzie and Hopwood seem to be the only persons to have taken the nest and eggs of this Bulbul within our limits. Mackenzie found three nests—two, containing two young birds, on the 26th and 31st March, and one, with two fresh eggs, on the 9th April. "The first nest taken was in a clump of bushes growing in open swampy jungle and the second on a 'Dhani' leaf, covered with a creeper, on the edge of a garden of 'Dhani' palms at Victoria Point; another nest, containing two half-fledged birds, found on the 7th April, was in a thick bush growing in the same open swampy jungle. It was built about 3' from the ground, whilst the one with the two fresh eggs was in open dry jungle in a bush about 6' from the ground.

"The nest is a fairly substantial shallow cup, made of grass-stems and leaves and lined with yellow grass."

Hopwood says that it is a bird of "low-lying swampy country from Mergui southwards. The nest is of the ordinary Bulbul type and is built generally in a fairly thick bush near the ground; two nests were placed in creepers which had enveloped Dhani

* Kloss considers the form of *goiavier* (Philippines) found in Java and Borneo, and known as *analis*, separable from the Sumatran (Achin) form, which extends North to Tenasserim. Accordingly our bird must bear Hume's name *personatus* ('Stray Feathers,' vol. i, p. 457, 1873).

palms (*Nipa fruticans*), whilst one was practically on the ground in a grass-tussock. The birds breed here in March and April, probably earlier."

Mr. Kellow found the bird common near Perak and obtained many nests, all placed low down in bushes and nearly always in rather thick scrub round villages and in the secondary growth growing in cultivation temporarily not in use.

As shown above, Mackenzie and Hopwood found them breeding in March and April, whilst Kellow took them from February to May. J. P. Cook also took three nests, containing in one case three and in two cases two eggs each, between the 3rd and 20th April.

The eggs could not be distinguished from very ordinary specimens of *Molpastes* of the purple-red spotted type, with either a white or a pinkish-cream ground, nor have I seen any varieties which are worthy of special description.

Forty eggs average 21.3×16.3 mm. : maxima 24.0×17.5 mm. ; minima 19.4×16.5 and 23.6×15.0 mm.

Pycnonotus aurigaster.

THE YELLOW-VENTED BROWN BULBUL.

(426) ***Pycnonotus aurigaster xanthorrhous* Anderson.**

THE KACHIN HILLS YELLOW-VENTED BROWN BULBUL.

Pycnonotus aurigaster xanthorrhous, Fauna B. I., Birds, 2nd ed. vol. i, p. 411.

This is a North-Eastern Burmese form, being obtained from the Kachin and Bhamo Hills to Karenni. It is common in the Shan States and extends into Yunnan and China. This seems to be the most common form of Bulbul in the Kachin and Bhamo Hills between 2,000 and 6,000 feet, breeding round villages and in open scrub, bamboo-jungle and even in gardens and inside the villages if there is bush-cover.

The first record of its nest appears to be that of Harington (Journ. Bomb. Nat. Hist. Soc. vol. xvi, p. 740, 1906):—"Sinlum Kaba is a great place for Bulbuls; *P. xanthorrhous* was, however, the commonest. I was, unfortunately, too late for the majority of birds, which had all hatched out and the young birds on the wing. I, however, found two nests, one containing two fledglings and one addled egg and the other three hard-set eggs. Both were found in scrub-jungle and placed about 3 feet from the ground, and were of the usual Bulbul type but more compact and neatly made."

Later (*ibid.* vol. xix, p. 121, 1909) Harington says: "It always seems to build its nest within two or three feet of the ground, generally placing it in a bramble bush among long grass and weeds."

In Kalaw (*ibid.* vol. xxii, p. 269, 1913) Cook found them "very common in the scrub. I found several nests. These were cup-shaped and very neatly made of grass and bracken, and lined with fine grass. The usual site chosen for the nest was a raspberry bush, but I have found several nests built in thick clumps of grass close to the ground. The date of the first nest was April 3rd and of the last nest April 28th, containing fresh eggs."

The normal number of eggs laid seems to be three; sometimes only two are laid, and once Pershouse "took a beautiful clutch of four eggs, in an advanced stage of incubation," at Sinlum Kaba. He adds: "All the nests of *P. xanthorrhous* I found were in bracken and none in long grass or weeds."

From the above notes April would seem to be the month in which most eggs are laid, some in the end of March and a good many during May.

The eggs are just like those of *Molpastes c. bengalensis* but with very little variation. The ground is white to very pale creamy white and the marking consists of purple-red small blotches, distributed in most eggs thickly over the white surface, but forming rather denser confluent caps or rings at the large end. Other eggs have the markings smaller and more sparse, while I have one pair of the white type with quite tiny specks of purplish-brown all over the surface, very numerous but not very dense. As a whole they are rather richly marked eggs.

Thirty eggs average 21.7×16.2 mm. : maxima 23.5×16.5 and 21.3×16.8 mm. ; minima 21.0×16.0 and 21.1×15.8 mm.

***Pycnonotus finlaysoni*.**

THE STRIPE-THROATED BULBUL.

(427) *Pycnonotus finlaysoni finlaysoni* Strickl.

THE MALACCAN STRIPE-THROATED BULBUL.

Pycnonotus finlaysoni finlaysoni, Fauna B. I., Birds, 2nd ed. vol. i, p. 412.

The range of this bird's habitat is Taunghoo, East of the Sittoung River, South throughout the Malay Peninsula but not the islands, where it is replaced by other subspecies.

Bingham obtained a single nest of this bird on the 22nd May, 1877, in the jungles below the Circuit House in Moulmein. "A neat, though thinly made cup-shaped nest in the fork of a tall sapling, some 12 feet above the ground. Coming closer, I perceived it contained eggs, which were plainly visible through the frail structure of the sides. The nest was rather a deep cup, and, notwithstanding its flimsy sides, strongly made of grass-roots, lined with very fine black roots of fern."

Darling obtained three nests at Taroar, in the Malay Peninsula, on the 8th and 10th February and 16th March. Two of these were

on bushes 5 and 3 feet from the ground, and the third in a small sapling $5\frac{1}{2}$ feet from the ground. The three nests were all cup-shaped, and are described as follows:—"The foundation was of leaves and fine grass, lined with fine grass and a few cocoanut fibres"; "foundations of dead leaves built of fine twigs and fibrous bark, lined with fine grass, bents and moss roots"; whilst the third nest "was of the ordinary Bulbul type, but better put together and neater. The foundation was of fine fibrous bark and twigs, lined with fine grass stalks." All were placed in vertical forks and not in horizontal, or pendent positions.

Except that one of these was built on a sapling "on the top of a thinly wooded hill," we are, as usual, told nothing about the kind of country in which this Bulbul nests. Fortunately, Mackenzie and Hopwood supply this deficiency, they having taken many nests near Victoria Point, whilst Cook took others at Ataran. The following summarizes the notes of these three gentlemen:—

The birds breed in light forest and also in bamboo-jungle and secondary growth, but their favourite nesting sites are in scrub round villages, grazing lands interspersed with bushes and trees, and sometimes even in large gardens. The nests are very frail-looking affairs, and one can often see the eggs or young through the sides or the bottom. They are not, however, as frail as they look, and perform their function of holding the young until they are fledged quite satisfactorily. They vary much in their construction, *vide* the three found by Darling and described in Hume's 'Nests and Eggs.' Some are made of tiny twigs of a thorn-bush or cane, others are made of grass-stems, the lining all black and contrasting with the yellow grass of the exterior material. Some have quite a number of leaves used in the body of the nest and many have roots and fibre. The lining seems to be generally of yellow grass, sometimes of fungoid mycelæ. The nests are built at any height between 2 and 10 feet from the ground, most often in low thick bushes, often in small, almost bare saplings and, occasionally, in bamboo-clumps. Hopwood adds that the fibre used in the nests is taken, he believes, from palm-trees. The measurements he gives are, roughly, about 3.75×1.75 inches externally and about an inch less each way for the cavity.

They breed from February to early May, the latest dates recorded for eggs being the 3rd and 5th May for two nests taken by Cook at Ataran in 1912 and 1913.

The number of eggs laid is two generally, sometimes three and sometimes one only.

Most of the eggs of the genus *Pycnonotus* dealt with up to now have been to all intents and purposes very much the same in all respects as those of *Molpastes* and *Otocompsa*. The present bird's eggs have a distinct character shared by many of the species and subspecies of *Pycnonotus* which are described later in this volume. A few eggs may be matched by common types of eggs of *Molpastes*,

and it is remarkable that such eggs average bigger than most *finlaysoni* eggs and approach those of *Molpastes* in size as well as in character.

Taken as a series, the eggs are small, rather long ovals in shape and, whatever the colour, there is a pinky look about them. These are the three principal characteristics.

Taken more in detail, most eggs have a pale cream ground marked with blotches of a rather chestnut-red, sometimes quite light, sometimes rather darker. In two out of three clutches the blotches are more numerous at the larger end, where they form indefinite caps or rings; here, also, are many blotches and smears of lavender-grey, often showing up strongly, especially at the extreme big end. Some eggs have the blotches, both chestnut and grey, fairly numerous over the whole egg. Another type, which seems more common in the eggs of the genera *Pycnonotus* and *Brachypodius* than in any of the others, is an egg which, looked at superficially, seems to be a uniform salmon-pink with a grey cap at the larger end. If examined carefully, these eggs will be found to have a warm salmon ground flecked all over with tiny specks of light red, whilst the larger end is practically covered with grey secondary blotches showing through the others.

The shell, for a Bulbul's, is fairly fine and close and there is often a pronounced gloss.

The average of twenty-five eggs is 22.1×15.6 mm.: maxima 23.1×16.5 mm.; minima 18.8×15.0 and 20.2×14.8 mm. Two very large sets of the *Molpastes* type of eggs, although sent me from an excellent authority, always fill me with doubt whenever I look at them, and if we eliminated these five eggs the average would come down greatly, while the maxima would be only 21.5×16.0 mm.

(428) *Pycnonotus finlaysoni davisoni* (Hume).

THE ARRAKAN STRIPE-THROATED BULBUL.

Pycnonotus finlaysoni davisoni, Fauna B. I., Birds, 2nd ed. vol. i, p. 413.

This Stripe-throated Bulbul replaces the preceding in Western Burma from the Chin Hills to Tenasserim West of the Sittoung River.

All we know of the breeding of this Bulbul is included in Oates's notes in Hume's 'Nest and Eggs,' and the birds seem to have quite defeated all our latest collectors and ornithologists. Oates writes:—

"The nest is a flimsy structure, built of stems of small weeds and lined with grass. A few fine black tree-roots are twisted round the egg-chamber. The outside and inside diameters measure 4 and 3 inches, and the depths are similarly 3 and $1\frac{1}{4}$. Both nests were placed low down, about 4 feet from the ground—one in a bush, and the other in a creeper.

"The eggs vary much in size; one pair measured .92 and .88 by .60 and .65 and the other .83 and .82 by .65 and .61 respectively; the ground-colour of all is a pinkish white. In one pair the shell-blotches of washed-out purple are spread over the whole egg and the surface-spots and dashes of carneous red are also equally spread over the whole shell. In the other pair the shell-marks are grouped round the larger end to form a broad ring, and the whole egg is thickly speckled and spotted with bright reddish. The eggs are very slightly glossy."

Each nest contained two eggs and off each nest the female was shot. If we reduce the sizes given for the eggs from inches to millimetres we find they measure between 23.3×16.5 and 20.8×15.5 mm. Both descriptions and sizes of these eggs, authentic without doubt, help us to believe in the large eggs of the preceding bird.

Oates took his eggs on the 1st and 6th of June.

(429) *Pycnonotus melanicterus* Gmel.

THE BLACK-CAPPED BULBUL.

Pycnonotus melanicterus, Fauna B. I., Birds, 2nd ed. vol. i, p. 414.

This Bulbul is confined to Ceylon, where it occurs over the whole of the wet zone from the plains and foot-hills up to 5,000 feet. It is a forest bird but seems to prefer lighter forest to the interior of dense evergreen forest, while it is also often found on the outskirts of forest, in Rubber-plantations, Tea-estates etc.

The nesting-site seems to vary very much; the first ever taken, fully identified and sent to Legge, was on the top of an old stump; one taken by Phillips was "placed high up in a rubber tree on the edge of a small jungle; another was "high up in a mass of creepers growing over a tree"; several taken by Phillips have been "placed right at the top of fair-sized trees," and, finally, the great majority are placed low down in small but thick bushes not more than 3 to 4 feet from the ground.

Describing the nest, Phillips writes:—"The nest is small and shallow, of a distinct Bulbul type, constructed chiefly of dead leaf-stalks, dried fern etc., with a few semi-dead leaves interwoven into the structure. This species always seems to build a dead leaf or two, sometimes a good many, into the foundation of the nest. The nest is usually placed high up in fair-sized trees but the sites vary greatly. The materials of which the nests are made cover a large number. I have seen nests composed of fern-stems and lined with fine dead leaf-ribs, and one such was a deep cup instead of a shallow one; a few nests are lined with fine grass; some nests are made almost entirely of fine rootlets."

Wait says: "Fairly common in forest, low jungle, clumps of thicket, shady ravines etc. The breeding season is probably March to July,

occasionally later." This period must be extended as from February, in which month Phillips has taken several nests, while Jenkins also took one. In my series there are none taken later than July, nor have I any record of such. The number of eggs laid is two or three, two rather more often than three.

Nearly every egg could be matched by eggs laid by *Otocompsa jocosu*, yet as a series they have their own distinctive characters, which are hard to explain. They are not such bulky looking eggs as those of *jocosu*; many have the curious stippled appearance uncommon in the eggs of that bird, while some have the chestnut-pink characteristic tint of the true *Pycnonotus* eggs. One type, also common in the eggs of this Black-capped Bulbul, is of the greatest rarity in the eggs of any *Otocompsa*. In this the ground is a dull pink, densely speckled all over with light red-brown, the stippings mingled in some eggs with blotches, which hardly show among the dense stippings. These eggs have no trace of the purple-red of most Bulbuls and, when seen in a big series, look like little red-brown eggs.

One curious but undoubted pair of these eggs is a beautiful pale salmon, one egg with great purple-red blotches at the small end, the other boldly splashed and speckled with purple-red over the whole surface.

In shape they are typically rather short ovals, very elliptical in some; in others they are the usual broad, well-compressed shape of most Bulbuls' eggs.

Twenty-four eggs average 20.9×15.7 mm. : maxima 22.0×16.2 and 21.2×17.0 mm. ; minima 19.0×16.0 and 21.9×14.2 mm.

(430) *Pycnonotus xantholæmus* Jerdon.

THE YELLOW-THROATED BULBUL.

Pycnonotus xantholæmus, Fauna B. I., Birds, 2nd ed. vol. i, p. 415.

This Bulbul is found in Travancore, Mysore and the Eastern Ghats.

Nothing was known of the breeding and very little about the habits of the Yellow-throated Bulbul until a most interesting article from P. Roscoe Allen appeared in the Journ. Bomb. Nat. Hist. Soc. for 1909 (vol. xviii, p. 905), most of which I here quote:—

"There is a little-known peak of the Eastern Ghats situated at the extreme south of Cuddapah district of the Madras Presidency, and I am happy to be able to afford a little information about the Yellow-throated Bulbul which occurs there.

"The Peak is called Horsely Konda (Horsely's Hill); the height runs up to 4,000 feet above sea-level. It is now all included in reserved forest, and as the water supply, though scanty at times, is sufficient and fairly distributed, the hill is a great resort in the hot season for the birds of the surrounding country.

"I visited the hill-top late in April last, but it was only at the expense of some little trouble that I succeeded on the 29th of April in obtaining a specimen of the Yellow-throated Bulbul. The bird is exceedingly shy and restless. I secured my first specimen from the verandah of the little Mission bungalow in which I was residing. Later, on the 20th May, I secured another specimen and, at the end of May, they were not uncommon on the hill.

"The birds go about in pairs, and, once up the hill, seem to take up their quarters in some chosen spot where they are usually to be found, large boulders shaded by trees being especially favoured.

"On the 15th May, I found a nest of this bird. It was placed on the ground among dead leaves and between two overarching granite boulders. We were in thin jungle on a sloping hill-side. We retired some distance and watched the birds return and I subsequently observed the bird on the nest. It was a very ordinary Bulbul's nest containing three eggs, much like the eggs of other species of the Bulbul family. They measured $\cdot 85 \times \cdot 67$ ".

"On the 20th May I found another nest containing two eggs. This was placed in a dwarf date palm (*Phoenix humilis*), a common feature of the vegetation of our hills of this altitude in Southern India—on a fairly open hill-side."

Col. C. L. Wilson also writes: "Shot and identified one of these Bultuls at Bellary, Madras, on 18th June, 1901. I noticed quite 20 pairs frequenting the rocky hills. Took a nest of this Bulbul on 23rd June, 1901, two eggs much incubated, only one preserved. Shallow nest of very coarse twigs—bound together with cobwebs and lined with fine fibres—the whole a heavy clumsy structure quite unlike an ordinary Bulbul's nest. The two eggs it contained were white with a very slight gloss—blotched and marked with purple and brick-red, the markings forming a very decided ring round the larger end.

"From my observations June and July would seem to be the breeding months."

(431) *Pycnonotus gularis* (Gould).

THE RUBY-THROATED BULBUL.

Pycnonotus gularis, Fauna B. I., Birds, 2nd ed. vol. i, p. 415.

This is another Bulbul peculiar to South-Western India, being found only from Kanara to South Travancore. Davidson says "it is common in Siddapur and on the wooded parts of Kumta, and occasionally through the dense forest of Karwar, Ankola and Yellapur."

The only note I can find on its nidification is the following from Davidson (Journ. Bomb. Nat. Hist. Soc. vol. xi, p. 650, 1898):—"I have taken five or six of its nests. They are small cups,

outwardly composed of a mass of large red dead leaves slightly bound with one or two roots and spiders' webs, and lined inside with a few roots and grass-stems of a coarse description. The first nest I found was on a sapling some 10 feet from the ground. It was a solitary tree about twenty yards from a thick piece of evergreen jungle. I saw a bird fly from the tree, but from below all that appeared was apparently some dead leaves, and it was a mere chance I sent a boy up to look. Another nest taken a few days later was similar, but was in a small bush in very thin forest, and only a foot and a half from the ground. A third was about five feet from the ground in evergreen forest; others were in similar situations and all were similar, the solid mass of dead leaves forming the foundation being unlike anything I have seen in other nests. The eggs are two in number and very small for the size of the bird; they are quite devoid of gloss, and of a pink colour, mottled thickly all over with the smallest possible dark reddish-brown and purple spots, these spots being hardly larger than fine points."

T. R. Bell has also taken nests and eggs, the latter exactly like those taken by Davidson. They are also exactly like those which I have described as the most common type of egg of *P. finlaysoni* and the brown speckled type of *P. melanicterus*. Two eggs similar to this were taken by Stewart on the 6th of March in the Travancore Hills. Four eggs, two single ones and a pair, measure 21.0×16.0 , 20.5×14.9 , 20.9×15.0 and 21.2×15.0 mm.

I have another pair, taken by Stewart himself in the Palni Hills on the 23rd April, which are much bigger, measuring 23.0×16.1 and 22.1×15.6 mm. There may possibly be some mistake about these, as they do not bear the *Pycnonotus* impress on them.

***Pycnonotus cyaniventris*.**

THE BLUE-BELLIED BULBUL.

(432) *Pycnonotus cyaniventris cyaniventris* Blyth.

THE MALAY BLUE-BELLIED BULBUL.

Pycnonotus cyaniventris cyaniventris, Fauna B. I., Birds, 2nd ed. vol. i, p. 416.

This Blue-bellied Bulbul occurs throughout peninsular Siam and Burma to Sumatra.

We know practically nothing about the nidification of this Bulbul and very little of its life-history. From Davison's remarks it appears to be a bird of forests, keeping much to scrub and open spaces just on their outskirts, and retreating to their interior when disturbed.

The only nests ever taken were three by Kellow, one close to Taiping and two near Perak. One nest and two eggs were sent me

with the skin of the parent bird and two other clutches sent the following year, said to be of the same bird.

Kellow describes the nests as "like small neat nests of *Otocompsa*. They are made of roots and coarse grasses and all had a few leaves in the base of the nest well bound round with the roots. The lining is of roots and coarse grass-stems, principally the latter. All three were placed in low bushes in scrub-jungle just on the edges of deep evergreen forest.

The three nests were taken, one each, in April, May and June.

The two eggs sent me with the skin of one of the birds are exactly like the small, speckled, purple-brown eggs of *P. finlaysoni* and *P. melanicterus*, obviously *Pycnonotus* eggs of some kind. They measure 21.4×16.2 and 21.4×16.6 mm. Another clutch of three are of the same character but the blotches are much redder and the bigger underlying clouds of grey show through much more. Still, one would call them quite typical *Pycnonotus* eggs. They measure 20.0×15.1 to 20.5×15.5 mm. The third clutch are bigger eggs of the purple-red blotched type so common in *Molpastes*, and these measure 22.0×15.5 , 20.7×15.6 and 21.9×15.3 mm.

(433) *Pycnonotus luteolus* (Lesson).

THE WHITE-BROWED BULBUL.

Pycnonotus luteolus, Fauna B. I., Birds, 2nd ed. vol. i, p. 417.

The White-browed Bulbul is found throughout the greater part of the plains and lower hills of Southern India from Baroda on the West and Midnapore on the East, South to Cape Comorin and in Ceylon.

In Ceylon this is undoubtedly a bird of the forest and jungle rather than of villages and gardens. Wait, in 'Birds of Ceylon,' writes of its habits and habitat:—"Very much the same as those of the Madras Bulbul, but it is not nearly so partial to cultivation, being especially common in bushy scrub, Lantana, chenas, low jungle, and the undergrowths in dry forests."

In India, although it is often found in similar kinds of jungle, it is also often found breeding in gardens and in scrub round villages. Both the Aitken brothers and Jerdon found nests in their own gardens, these being the only ones recorded in Hume's 'Nests and Eggs.' Davidson, also, says that it shuns heavy forest but that "it is extremely common in the 'lankana' or wild heliotrope surrounding the old fort at Halyal. I have taken numerous nests there, generally suspended from the 'lankana' about $1\frac{1}{2}$ or 2 ft. from the ground."

Mr. B. Aitken sent a nest with two eggs to Hume which he took himself "from a thickly foliaged tree in a garden. It was placed on the top of the main stem of the tree, which had been abruptly

cut off about 5 feet from the ground, where the stem was about 3 inches thick.

He adds: "I draw your attention to the manner in which this nest has been tied at one place to a twig to prevent its being blown off its very (apparently) insecure site."

Hume describes this nest as "a rather loose straggling structure, exteriorly composed of fine twigs. The cavity, hemispherical in shape, is carefully lined with fine grass-stems. Outside, it is very irregularly shaped, and many of the twigs used are much too long and hang down several inches from the nest; but on one side the outer framework has been tied with wool and a little cobweb to a live twig to which the leaves, now withered, are still attached. No roots or hair have entered into the composition of this nest."

The nest obtained by Jerdon, very similar otherwise, had both hair and roots used in its construction.

Two nests taken by McArthur at Khamptee, C.P., are curious in that one has bits of paper and the other a piece of snake-skin used, among other materials, in making them. These nests also have cobwebs employed, both to keep them together and to help in fastening them to the twigs, a common feature which has been observed and commented on also by Williams at Bangalore and by others elsewhere.

In Ceylon Wait and in Bangalore Williams both say that the nest is much like that of *Molpastes*, sometimes larger, sometimes smaller. As in other parts of India, they are nearly always placed in bushes quite low down.

In India these birds seem to breed principally in May and June but Aitken took one nest in September, probably a second brood, as he had previously seen a pair going about in his garden with a young one.

In Ceylon they breed from December to June, February and March being the favourite months, though eggs may possibly be taken in every month of the year.

The number of eggs laid is almost invariably two, three being quite exceptional.

Although Hume says that these eggs are quite unlike any others, I confess that to me they appear to be individually in no way different to those of *Otocompsa jocosa*. As a series they look like *Pycnonotus* eggs; the specks and blotches run very small and numerous, the shape is decidedly long, and heavily blotched eggs are rare. The typical *Pycnonotus* type of brownish eggs with profuse fine speckling is fairly common but redder in colour.

Sixty eggs average 22.9×15.8 mm.: maxima 25.5×15.6 and 24.6×17.0 mm.; minima 19.0×15.6 and 23.8×15.6 mm.

Pycnonotus plumosus.

THE LARGE OLIVE BULBUL.

(434) **Pycnonotus plumosus plumosus** Blyth.

THE SINGAPORE LARGE OLIVE BULBUL.

Pycnonotus plumosus plumosus, Fauna B. I., Birds, 2nd ed. vol. i, p. 419.

As I have remarked in vol. i of the 'Fauna,' it is very difficult to define the limits between this bird and *P. b. robinsoni*. Apparently the present is a Western form, being found from Singapore, the Malay States in Johore, Pahang, Perak, Keda and thence up the West coast of Tenasserim to the town of that name. It also occurs in Sumatra and Borneo. For the present I prefer to retain *plumosus* and *blanfordi* as species, following Kloss and accepting his distributions.

It is a Bulbul of forest and dense jungle; Davison says that it "keeps chiefly to the forests, though occasionally occurring in more open ground." Kellow obtained it in dense forest and in the adjoining bush and scrub-jungle; Moulton found it breeding in thick jungle, making its nest in low bushes.

The Waterstradt collection had a fairly long series of these eggs but no details with them beyond the date and place at which they were taken.

Six nests with eggs, out of eight of which I have any record, were taken in March, from the 5th onwards, one on the 5th of April and one on the 17th May.

Nests sent me by Moulton, the parent birds of which are now in the Sarawak Museum, are rather shallow cups made of grass-stems, a few weed-stems, roots and dead leaves fairly well put together, the weed-stems being used principally to bind together the loose leaves. The nests are quite well lined with fine grasses. The sites selected were low bushes on the outskirts of forest.

They were typical Bulbuls' nests, very like those of *Otocompsa* but neater and more compact.

Kellow and his collectors took several nests and eggs, and the former, sent to me, were like those just described. These, too, were placed either in small bushes in forest or in cane-brakes, a similar position to that in which Davison took his nest. All nests seem to have been placed very low down between 1 and 3 feet from the ground.

The eggs are just like those of *Otocompsa jocosa* and my small series has them varying from the white type scantily speckled with purple to the almost uniform deep red blotched egg with warm pink ground. Looking at them as a series I should have put them down as *Otocompsa* eggs and not those of a *Pycnonotus*.

The full clutch is two or three. I have a so-called clutch of five brought in to Kellow but I am sure two clutches have been mixed

together or two birds have laid in the same nest, a not altogether unknown happening. The nest was quite a typical nest and Kellow considered the taker trustworthy and he had nothing to gain by deceiving.

Twenty eggs average 22.0×16.4 mm. : maxima 24.5×16.5 and 21.0×17.2 mm. ; minima 19.7×16.1 and 20.5×15.4 mm.

***Pycnonotus blanfordi*.**

THE PEGU OLIVE BULBUL.

(436) ***Pycnonotus blanfordi blanfordi* Jerdon.**

THE PEGU OLIVE BULBUL.

Pycnonotus plumosus blanfordi, Fauna B. I., Birds, 2nd ed. vol. i, p. 420.
Pycnonotus blanfordi blanfordi, ibid. vol. viii, p. 616.

This Olive Bulbul is found over practically the whole of Northern Burma from the South Chin Hills, Bhamo and Shan States, Karenni, South to Rangoon and to the same latitude farther East. It occurs in North and North Central Siam and Annam.

This is a very common bird in the plains portions of the places mentioned but it does not ascend the hills to any height. In the dry zone Wickham says "the place is thick with them." Mackenzie found it very common in Pakokku, where he took many nests, but he never came across it in the Northern Chin Hills.

There is not much that one can say of this bird's nidification beyond what has already been said of the preceding one. It is a bird of open country, cultivated parts, villages and even towns, but not of forests and heavy jungle.

The nests are much the same as those of *P. b. robinsoni*, and Oates's description of the one taken by him in Pegu would do for most. He writes:—"Nest in small tree, well concealed by leaves, about 7 feet from the ground, near Pegu. A very neat cup measuring three inches diameter externally and $2\frac{1}{4}$ internally. The depth $1\frac{3}{4}$ outside, $1\frac{1}{4}$ inside. The sides of the nest, though very strongly woven, can be seen through. The materials consist of fine branchlets of weeds, and the inside is neatly lined with grass. One or two dead leaves, or rather fragments, are used in the exterior walling.

"Subsequently I found five other nests, from the 1st April to the 20th June, all similar to the one described."

The breeding season seems to be very protracted. May and June are probably the months in which most eggs are laid, but they have been taken from the 20th March to the 12th August.

The number of eggs laid is generally three, occasionally two only, and once Mackenzie found a four.

They are just the same as those of the other subspecies, like poorly-marked eggs of the pale *Otocompsa* and *Molpastes* type.

Fifty eggs average 20.8×15.7 mm. : maxima 22.5×16.9 mm. ; minima 19.3×15.9 and 20.0×14.7 mm.

(435) *Pycnonotus blanfordi robinsoni* Ogilvie-Grant.

THE SIAM OLIVE BULBUL.

Pycnonotus plumosus robinsoni, Fauna B. I., Birds, 2nd ed. vol. i, p. 420.
Pycnonotus blanfordi robinsoni, ibid. vol. viii, p. 616.

*The Siam Olive Bulbul appeared to me to be the Eastern representative of the preceding species but Kloss, with far more material, thinks otherwise. It is said to occur from Patani in the extreme South of peninsular Siam, up the East coast, perhaps entering the borders of East Tenasserim near Tavoy, as far North as Ayutthia, Natrang and Kraben, whilst there are also specimens, apparently identical, from Annam in the British Museum.

There is little that can be added to the excellent account of this bird given by Herbert (Journ. Siam Nat. Hist. Soc. vol. vi, p. 94, 1923) under the name of *P. blanfordi*, *robinsoni* not then being admitted:—

“One of the commonest birds in Bangkok, and it may be found nesting in nearly every compound, yet it is one of the instances where I delayed collecting a series of eggs to show the difference in marking until it was too late.

“The nest is usually built within easy reach of the ground, sometimes in the steep fork of a croton, though more often on the light branches of some small tree, or even a creeper. It is constructed of fine grasses or, where there are cocoanut-palms near by, of fibre, and cemented together on the outside with small patches of cobwebs. The inside is hemispherical in shape and is neatly finished with the same materials, but the entire structure is always very thin.

“The nesting season commences in January and extends to the latter part of September, though the hot weather and early part of the rains are the more general times. These birds do not make successful parents for, despite their devotion and fussiness, they are in many ways very casual; this is borne out by the number of instances in which the old birds may be seen in attendance on a single young one. Two eggs are laid and very occasionally three, but sometimes only one is hatched, and even when there are two young ones some disturbance usually causes the loss of one of them. The nest is often very insecure, and several times I have known them to be capsized in a wind-storm; on one occasion I placed the nest in a more secure position in a Croton and, after I had replaced the half-fledged youngster, the agitated parents continued their family duties. Two or more broods are raised during the season.

"The eggs are moderately broad ovals in shape, and only slightly compressed towards the smaller end; they are fine in texture but without much gloss. The ground-colour is pale pink or pinky white, with markings in deep red or reddish brown, and secondary markings of pale purple. They show much variety and are handsome eggs, though not so richly marked as those of many other Bulbuls. The markings consist of speckly and blotchy spots of irregular form of varying depths of colour, and are more closely massed in a zone or cap at the large end. The average size of the egg is 21.5×15.5 mm."

I have a very fine series of the eggs of this Bulbul, given to me by Sir F. W. Williamson and Mr. Herbert and, as a series, I should call them poorly-marked eggs, quite indistinguishable from those of *Otocompsa jocosa*. Most eggs are only marked with speckles and spots, blotches are quite uncommon, and any depth of pink in the ground-colour is rare. On the whole they are more slender in shape than *Otocompsa* eggs.

One hundred eggs average 21.6×15.6 mm. : maxima 23.0×16.2 and 22.2×16.7 mm. ; minima 20.1×15.1 mm.

Williamson's eggs were all taken between the 1st February and the 18th June, but odd eggs may be taken, I understand, in almost every month of the year.

The normal clutch of eggs is two, and out of seventy-six nests examined by Williamson only four contained clutches of three eggs.

***Pycnonotus brunneus*.**

THE BROWN-EARED OLIVE BULBUL.

(437) *Pycnonotus brunneus brunneus* Blyth.

THE BROWN-EARED OLIVE BULBUL.

Pycnonotus simplex simplex, Fauna B. I., Birds, 2nd ed. vol. i, p. 421.

Pycnonotus brunneus brunneus, Blyth, J. A. S. B. vol. xiv, p. 568, 1845: Malacca.

This Bulbul seems to be more a bird of thin forest than of towns and villages. Davidson says it is sparingly distributed throughout the greater part of Tenasserim in well-wooded parts, but there are specimens obtained by him actually in Tenasserim town and, also, apparently in Pakpoon and Mergui. South of Tenasserim it is found throughout the Malay States and into Sumatra.

The only recorded note on its breeding is that of Davison in 'Stray Feathers,' where he says: "I took a nest of *P. simplex* in some rather thick jungle at Klang. The nest, of the ordinary Bulbul type (in fact it might easily have passed for a nest of *Otocompsa*), was placed in the fork of a small sapling about six feet

from the ground. The nest contained two eggs. The female was shot from the nest.

"The eggs are moderately elongated, rather regular ovals, some specimens having a slight pyriform tendency. The shell is fine and compact and seems to have an appreciable but not striking gloss. The ground-colour appears to have been creamy pink, and it is very thickly freckled and speckled all over with a rich maroon, in among which tiny clouds of pale purple may be faintly discerned. Dense as are the markings everywhere, they are generally most so in a zone round the larger end. Very possibly this species will be found to exhibit somewhat different types of coloration, as the eggs of all Bulbuls vary very much, but certainly typically the markings of this species are much more speckly than in most of the others, forming a universal stippling over the whole surface. The two eggs measured 0.9 and 0.88 in length by 0.62 in breadth."

Eggs and nests sent me from the Malay States and obtained from the Waterstradt collection agree well with the above.

Pycnonotus erythrophthalmus.

THE SMALL OLIVE BULBUL.

(438) ***Pycnonotus erythrophthalmus erythrophthalmus* Hume.**

THE MALAY SMALL OLIVE BULBUL.

Pycnonotus erythrophthalmus erythrophthalmus, Fauna B. I., Birds, 2nd ed. vol. i, p. 422.

This bird extends from the South of Tenasserim throughout the Malay States.

According to Davison, the nidification and habits differ in no way from that of the preceding bird.

The Waterstradt collection had a large number of these eggs and, when it was broken up, I secured two clutches and another from the same source from Nehr Korn and yet another through Kuschel. The Small Olive Bulbul is a much smaller bird than *P. blanfordi*, yet these eggs are much bigger on an average, and there may be some mistake about them. They were taken in January, March and May, and can be matched by many *Molpastes* eggs of the paler type.

One pair of small eggs do look like *Pycnonotus* eggs of sorts. The ground is pale pink and they are blotched at the larger end with purple-red and with one or two blotches of deep inky grey. Over the rest of the egg there are a few specks of the same colour. These two measure 21.0×15.8 and 21.0×16.8 mm.

Brachypodius atriceps.

THE BLACK-HEADED BULBUL.

(439) **Brachypodius * atriceps major** Rob. & Kloss.

THE NORTHERN BLACK-HEADED BULBUL.

Microtarsus melanocephalus melanocephalus, Fauna B. I., Birds, 2nd ed. vol. i, p. 423.

Microtarsus atriceps major, ibid. vol. viii, p. 617.

This fine little Bulbul is found from Assam, South of the Brahmapootra and the Eastern Bengal hill-tracts, through practically the whole of Burma South to the Isthmus of Kra.

This Bulbul seems to be a bird entirely of forest during the nesting season, breeding from the plains and foot-hills up to some 2,000 or, perhaps, 2,500 feet. In Assam its favourite haunts were the very highest of tree-forests where the giant trees grew fairly wide apart and where, for the most part, the undergrowth was not very thick. Through these forests, however, ravines run in which the trees were less numerous and the undergrowth very dense, whilst there was nearly always water down the centre of the ravines, becoming little torrents during the Rains. Here in the foot-hills of Sylhet and Cachar H. A. Hole first discovered the bird breeding. Since then a few more nests have been taken, all in similar forests. The nests are always placed in bushes and nearly always quite low down.

The nests themselves are rather bulky, for the size of the bird, and are well built and compact. The chief materials are the very tough but fine stems of a wild bean, with which are mixed, in varying numbers, fine elastic twigs, dead leaves and grass. The leaves preponderate in the base and lower part of the nest and are kept in position by the stems of the bean. The lining is of skeleton leaves over which is placed fine grass-stems. The nest is, I think, always placed in upright forks of branches and not in horizontal ones, and part of the material of which it is made is wound round the twigs and keeps it very firmly in position.

All our Assam nests were taken in April and May, whilst Macdonald and Mackenzie, in Amherst and Pakokku, obtained their nests with eggs in April.

The eggs number two. I have heard of, but not seen, one set of three, but have, on the other hand, known single eggs to be incubated. They are more like what I term true *Pycnonotus* eggs than those of any other genus, but they have a very definite character of their own. Looking at a drawer containing nothing but *Brachypodius*

* Robinson and Kloss reject the generic name *Microtarsus* for *Brachypodius* and show that the former name cannot be used.

eggs, the impression one gets is that of rather pale pinky or violet-purple series, pretty and distinctive eggs but nothing bold or rich in the markings.

One type is exactly like that of *Pycnonotus*, the whole surface covered with purple-brown specks, more brown than purple, whilst the almost invisible grey specks underneath are strong enough to give the characteristic violet tinge.

The second type looks a unicoloured purple-pink with a darker tinge at the larger end, but a powerful glass shows that the whole surface is covered with practically confluent specks.

Another single egg looks as if unicoloured pink-brown. Yet another type has the ground pale violet-pink, with irregular small primary blotches of reddish-brown and similar secondary marks of lavender, both kinds sparse but the secondary predominating.

A variation of this last type has the ground more pink and the markings pale pinky brown.

Finally, a clutch taken by that very good collector K. Macdonald is exactly like that of *Molpastes*, but very small.

Seventeen eggs average 21.1×15.9 mm. : maxima 23.2×16.1 and 22.4×17.0 mm. ; minima 19.0×15.4 and 20.8×15.2 mm. I have no doubt a larger series would give a much smaller average, as I have two pairs which are probably abnormally large, though in other respects very typical.

(441) *Brachypodius poiocephalus* (Jerdon).

THE GREY-HEADED BULBUL.

Microtarsus poiocephalus, Fauna B. I., Birds, 2nd ed. vol. i, p. 425.

This is another purely South-West Indian bird, restricted to the Malabar coast ; the Bombay Presidency from Belgaum Southwards throughout Travancore ; Coonoor and the Wynaad Hills from sea-level to about 2,000 feet.

The first person to take the nest and eggs of this Bulbul was Mr. J. Davidson in 1898, the following being his interesting note thereon (Journ. Bomb. Nat. Hist. Soc. vol. xi, p. 660, 1898) :—"I only once have found a nest, though I have no doubt a clutch brought to me belonged to this bird, but, as unauthenticated, they are of no value. The only nest I found was on the 16th March at Siddapur. I was assisting a boy to climb up to a nest of *Eulabes* when I noticed a small bird fly out of a small bamboo-bush behind, and in looking at the spot I saw a neat Bulbul's nest ; it was, however, empty, and I determined to visit it in the evening of my last day at Siddapur. This happened to be on the 27th, but official duties kept me busy until almost sunset, and as I did not know what the bird was, and it might have been merely a rubbishy *Otocompsa*, I very nearly gave it up, and actually tossed up a coin to see if I would take

the trouble to go the half-mile walk from my camp to visit it. The result was that I did go, and on reaching the nest found it contained one egg which a glance showed me was an egg of a species new to me. I sat down at once to wait for the bird, and in five minutes a small bird lit on a branch near, then flew to the bamboo and seated herself on the nest. It saw me, however, in a moment, and flew over my head, alighting in a thick evergreen exactly between me and the pink of the vanished sun. With my gun to my shoulder I followed the movements among the leaves and, getting a glimpse of the bird, fired. I could not see the result, but a search on the ground below in the dark revealed a specimen of this bird. The nest was a neat cup outwardly composed of bark, bamboo and other leaves, and lined inside with moderately fine roots. It is a solid and shallow nest. It was in the fork of two or three branches in a low bamboo about a foot from the ground and surrounded by evergreen forest. The egg was long-shaped, of a pinkish-brown colour with a distinct cap of darker hue."

Since then Bell has taken eggs in Kanara, of which he has kindly given me a pair, whilst I have also received a small series from Travancore, taken by Stewart. The nests taken by the latter were all built in low bushes, often thorny, in thick jungle at an elevation of about 2,000 feet. The nests were built in branches some 3 or 4 feet from the ground and each contained one egg only, in one case half incubated.

Davidson's nest was taken in May, Bell took one in July, whilst Stewart took his in April and May.

In my small series the purple-brown stippled form is represented by one egg, all the others being very pale pink, tinged very faintly with violet in the ground-colour and lightly flecked and stippled with pale pinkish-red and with secondary frecklings of pinkish-lavender, more numerous at the larger end, where the lavender is sometimes the dominating colour.

Six eggs average 21.7×15.5 mm.: maxima 22.3×16.0 mm.; minima 21.2×15.0 and 22.0×14.6 mm.

(442) *Brachypodius cinereoventris* (Blyth).

THE GREY-BELLIED BULBUL.

Microtarsus cinereoventris, Fauna B. I., Birds, 2nd ed. vol. i, p. 426.

The range of this bird is identical with that of *B. a. major*, of which, I think, it will eventually prove to be, as I have always thought, merely a dimorphic variation.

A nest was taken on the 13th May in a valley at about 1,600 feet and in which, on the day previous, a nest of the Black-headed Bulbul had been taken. It was in a bush placed at about 2 feet above the ground but, as it was surrounded by a dense and

unpleasantly thorny cane-brake, we could only get at it with difficulty. The nest contained three just-hatched young.

The only other nests which have been taken seem to be one with two eggs obtained by Kellow near Taiping and one got by one of my collectors on the Sylhet-Khasia Hills road in Assam, also with two eggs. All Kellow says of his nest is: "Nest a typical Bulbul's nest in a low bush."

U. Nissor, my collector, writes me about the nest found by him:—"Taken in a low bush in very dense jungle."

Both pairs of eggs are very typical pale pink eggs with the usual violet tinge and freckled and blotched, perhaps rather more strongly than usual, with, in one pair, pale chestnut-red, in the other pair with light brownish-red and lavender.

The eggs measure 21.4×15.4 and 20.1×15.1 mm., 23.4×16.1 and 22.3×17.0 mm.; the second pair may prove to be exceptionally large.

(443) *Kelaartia penicillata* (Blyth).

THE YELLOW-EARED BULBUL.

Kelaartia penicillata, Fauna B. I., Birds, 2nd ed. vol. i, p. 426.

The Yellow-eared Bulbul is confined to Ceylon, where it is found in the hills above 3,000 feet.

Since the first volume of the 'Fauna' was written, in July 1922, the intervening ten years have added much to our knowledge of the breeding of this bird, thanks chiefly to Messrs. Wait and Phillips.

Supposed eggs taken by Jenkins were exactly like those of *Iole icterica*. Later eggs were taken by J. Stewart's collectors, and these merely confirmed Jenkins's identification of his eggs.

Phillips, in 1927, and then Wait took a considerable number of nests of this Bulbul and in no single instance were the eggs anything like those previously assigned to the Yellow-eared Bulbul, and now, within the last two or three years, Phillips has taken a further long series and shown above all doubt that the eggs formerly supposed to be those of *Kelaartia* are, in fact, the eggs of *Iole icterica*. *Kelaartia*, we can say, certainly never lays eggs like, or which could be mistaken for, those of *Iole*.

They are forest birds and, according to Wait, "frequent forests, patanas, woods and the outskirts of cultivation." At the same time they are common in Rubber- and Tea-plantations, in the latter frequenting and breeding freely in the seed-tea plantations, where the unpruned seed-bearing bushes may run as high as 15 to 20 feet and form very dense thick cover.

The following is a summary of Phillips's notes on the nests:—"They are cup-shaped, well made and much more substantial than the nests of any Ceylon species of *Molpastes* or *Otocompsa* and, to me, recognizable at a glance from the nests of either of these.

They are built of moss, dead leaves and rootlets, often with a mixture of thin, supple twigs and sometimes with a good deal of coarse and fine grass and at other times with a little coir-fibre, interwoven with the other materials. I think one of the distinctive features of the nest is the very constant use of green moss in the outer walls, which are invariably strong and of some thickness, never so flimsy as to be transparent, no unusual thing with the nests of the other genera. The lining, usually fairly thick and well made, occasionally rather sparse, is made with grass-bents, fine hair-like vegetable fibre, coarser fibre, which seems to be from the bark of a tree, or fine roots; one nest had a curious lining of fern-stalks and the midribs of dead leaves.

"The inside cups of the nests, for the reception of the eggs, measure roughly $2\frac{1}{2}$ inches across by about $1\frac{1}{2}$ inches deep."

They are generally built in tall bushes 10 to 15 feet from the ground, occasionally in lower bushes. Phillips found a very favourite site to be in tall Tea-bushes standing close to the jungle or forest, the nests being placed near the tops 10 or 12 feet up, in upright branches. Nests with eggs have been taken by him in practically every month from the 3rd March to the 12th October, the majority of eggs being laid in August and September. The number of a full clutch seems to be invariably two.

Most eggs can be matched by eggs of *Molpastes* but are, on the whole, whiter in ground. In nine out of ten clutches the ground is pure white with moderate-sized blotches and spots and specks of purple-brown and secondary markings of the same character deep inky grey, always subordinate to the primary markings and sometimes practically absent. In some eggs the markings are scattered freely, but not profusely, all over the surface and not much more numerous at the larger than the smaller end. In other eggs they form zones about the larger end, and in these cases they are generally sparse, sometimes very sparse, elsewhere. I have only one set requiring a separate description; this has a pink ground, the whole surface being profusely speckled with reddish, the marks coalescing and forming a ring round the larger end.

Thirty eggs average 23.4×16.7 mm. : maxima 26.1×16.5 and 23.2×17.3 mm. ; minima 21.1×15.5 mm. This is quite exceptionally small. The next smallest eggs are 22.0×17.0 and 23.2×16.0 mm.

Family CERTHIIDÆ.

*Certhia himalayana**.

THE HIMALAYAN TREE-CREEPER.

(445) *Certhia himalayana himalayana* Vigors.

THE SIMLA HIMALAYAN TREE-CREEPER.

Certhia himalayana himalayana, Fauna B. I., Birds, 2nd ed. vol. i, p. 430.

Accepting Meinertzhagen's division of this species into three Western races, the distribution of the present form must be restricted to "Himalayas about Simla, Garhwal, Kuman, and East to Sikkim." It certainly extends into Western Nepal (it is common in Chakrata) and there is a specimen from Sikkim in the British Museum from Darjiling, but no recent ornithologist has come across it again, and there may be some mistake as to the locality where this skin was obtained. The Bhutan record is also open to doubt. The Murree bird Meinertzhagen considers to be his *limes*.

Curiously enough, there is no record of the breeding of the typical bird in Hume's 'Nests and Eggs,' and only one of the form now to be known as *limes*.

An excellent account of this Tree-Creeper by P. Dodsworth came out in the Journ. Bomb. Nat. Hist. Soc. vol. xx, pp. 463-71, 1910, from which I extract the following:—

"They are common birds, by no means shy, and visit the compounds and gardens here [Simla] freely.

"In the neighbourhood of Simla and adjacent ranges courting and building operations commence about the middle or third week in March.

"They lay from about the last week in March to the first week in May, but most eggs are to be taken during the early part of April. The earliest date on which I have found eggs is the 27th March,

* Meinertzhagen reviewed this species in the Bull. B. O. C. vol. xlii, p. 141, 1922, and there came to the conclusion that there were three Western Himalayan races. When I wrote the 'Fauna' I did not accept his *limes* on the ground that the indefinite forms covered so vast an area that it was impossible to define it. It is true that in Turkestan we have a grey form, *tenuira*, and in the Outer Himalayas a rufous form, *himalayana*. It is equally true that over a vast area we have another (?) form which in the South is not quite so rufous as *himalayana* and in the North not quite so grey as *tenuira*, although in each case many specimens are inseparable. *Limes* seems to be now accepted and I follow suit, though I am still very doubtful about it.

and the latest the 3rd May. Most of the nests examined towards the latter end of April had young.

"They have only one brood annually.

"Four is the normal number of eggs, but on three occasions I have taken five and, in one instance, I found a nest containing only three young ones, half fledged.

"The nests were invariably situated on trees and were placed, sometimes in holes belonging to other birds, but usually in chinks and crevices formed by thick branches shooting upwards from the main trunks. I have never found their nests on oaks, but have no doubt whatever that they build on these. Their favourite trees here are the Himalayan Cedars (*Cedrus deodara*) and Rhododendrons (*Rhododendron arboreum*). The same sites appear frequently to be used year after year, but whether by the same birds or not it is impossible to say. When the eggs are once removed the nest is deserted for that year. In one instance only I succeeded in taking an egg from a nest that I had robbed, a few days previously, of four eggs.

"The heights of the nests varied from $2\frac{1}{2}$ to 20 feet, but the majority were less than $4\frac{1}{2}$ feet from the ground. One nest was placed in a crevice formed by the thick upper roots of a *Cedrus deodara* which had got exposed and was actually below the level of the ground.

"The eggs were not laid on the bare wood but the crevices or holes were lined with thick masses of small feathers, in which a few pieces of dry grass and straw were occasionally intermingled. In some cases the nests were mere pads of feathers on which the eggs reposed; in others the pads were more substantial and the egg-cavities somewhat deeper.

"The nests take roughly a week to a fortnight to complete, and both the birds help, not only in carrying the material, but also in the building operations. As the sexes are alike it is difficult to make accurate observations but, so far as my experience goes, the hen bird alone appears to perform the labours of incubation. She generally begins to brood after the first or second egg is laid and the cock bird feeds her on the nest. The eggs appear to take 13 to 14 days to hatch. Both the old birds help in feeding the young, which leave their home in about three weeks.

"Four fresh eggs weighed, 2 at 18 grs. each, 2 at 20 grs. each; three semi-incubated eggs weighed, 2 at 18 grs. each, 1 at $19\frac{1}{2}$ grs."

There is little one can add to this exhaustive description but, probably, taking everyone's experience into consideration, it will be found that more nests are built in crevices in bark rather than in the little opening between big boughs and branches.

Osmaaston, who, during April and May, took several nests of this Tree-Creeper in the Tons Valley, Garhwal Hills, at 8,000 and 9,000 feet, gives a rather different description of the nest itself, which I quote:—"The nests of this Creeper were all very similar

in structure. They consisted first of an irregular mass of spruce-twigs, above which was a more or less distinct layer of dry rotten wood (touch-wood) the cavity being lined with fur and feathers. The whole of the nest, except the lining, was studded with the silky egg-cocoons of some spider, some of which were red and others green. These served to bind the nest together and to attach it to the bark and wood of the tree. The first two nests were placed between the semi-detached bark and the wood of large Spruce-firs, at heights of about 4 and 7 feet respectively from the ground, and the third was in a narrow rift in the wood of a Karshu-oak, about 4 feet from the ground."

The eggs vary in colour from pure white to a pale pink profusely speckled with light reddish-brown. In size these specks range from very minute, almost pin-point, to tiny blotches and in nearly all eggs they are more numerous at the larger ends, where they often form rings or indefinite caps. The depth of colour of the markings does not vary much; the lightest are a pinky red-brown, the darkest a fairly dark red-brown and, in these, the darkest eggs, there are often distinct secondary markings of inky grey showing here and there, especially in the ring or cap.

Abnormal clutches are often very like the eggs of Titmice. The blotches in these are larger, more sparse and sometimes a more red-brown than usual. This variety seems to occur occasionally in nearly all Tree-Creepers' eggs, in the European as well as the Oriental.

In shape the eggs are longish ovals, slightly compressed but not pointed at the smaller end. The texture is rather close but not very fine, and there is no gloss.

Thirty-five eggs average 16.3×12.25 mm.: maxima 17.6×12.4 and 17.0×13.0 mm.; minima 14.6×11.3 mm.

(445) *Certhia himalayana limes* Meinertz.

THE WESTERN HIMALAYAN TREE-CREEPER.

Certhia himalayana tenuiura, Fauna B. I., Birds, 2nd ed. vol. i, p. 431.

Certhia himalayana limes, ibid. vol. viii, p. 617.

Limes now becomes the name of the Tree-Creeper over practically the whole of North-West India from the Afghan and Baluchistan Frontier, Gilgit, the whole of Kashmir and West, on the Outer Himalayas, to Murree. Where it meets and merges into the preceding form is not yet defined.

Meinertzhagen obtained it on Ziarat, near Quetta; Whitehead says: "Breeds in fair numbers on the Safed Koh from 7,000 to 9,000 feet"; it is common in Kashmir in many parts up to 10,000 feet and it is very common at Murree between 6,000 and 9,000 feet.

Marshall obtained the nests of this Creeper at Murree and observes :—"This is a most difficult nest to find, as the little bird always chooses crevices where the bark has been broken or bulged out, some 40 or 50 feet from the ground, and generally on tall oak-trees which have no branches within 40 feet of their roots. The nests we found were in the highest part of Murree, about 7,200 feet."

Rattray, however, found nests quite differently situated. He says : "Very common. I took numerous nests at Murree, Changla and Danga Galis. The nests were generally fairly low down under a piece of bark in a fir-tree. Most nests found in May, a few in June. The illustration shows fairly the site of the nest, which was placed under the bark, a few pieces of moss etc. showing. The tree was a large fir that had been struck and cut down by lightning."

Whitehead also got a nest low down in a stump, recording in his note-book :—"16.6.12. Bird caught on nest, 10,500 feet, Balta Kundi, behind bark in stump about 4 feet up. Nest a pad consisting of a few bits of moss, hair and fur and a few strips of rotten wood.—C. H. T. W."

The eggs are in no way different from those of the preceding form and go through the same range of variations, including the abnormal ones, like those of a Titmouse.

Thirty-four eggs average 15.8×12.2 mm. : maxima 17.5×12.3 and 16.3×12.9 mm. ; minima 14.7×11.9 and 15.3×11.2 mm.

Certhia familiaris.

THE COMMON TREE-CREEPER.

(448) *Certhia familiaris nipalensis* Blyth.

THE NEPAL COMMON TREE-CREEPER.

Certhia familiaris nipalensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 433.

This race of Himalayan Tree-Creeper is found in the Himalayas from Nepal and Sikkim to the Mishmi and Abor Hills in Eastern Assam. Stevens says that it is a sedentary bird, generally distributed from 8,000 to 12,000 feet, and recorded up to 13,000 feet.

There is, apparently, no record of this bird's nesting but my own, recorded in 'The Ibis,' January 1895, p. 321. The skin of the bird of the nest described is, unfortunately, not now in existence, but I confess that I should much like to have it for comparison now that we know so much more about Tree-Creepers. It is just possible that it might have been a *Certhia discolor*.

My note, for what it is worth, is here given :—"I have seen but one nest of this bird, which was taken on the 16th [misprint for 11th] May, 1890, from a large tree growing on a peak towards the

East of the Cachar Hills. The elevation was close on 6,000 feet. The bark of this tree was in a very ragged state, large pieces projecting here and there over its whole surface in a semi-detached manner. Inside one of the larger of these fragments of bark, which only adhered to the tree by its basal quarter, a pair of Tree-Creepers had made their nest, a small shapeless mass of moss and moss-roots, with a snug little cup of some 2" in diameter. It was placed at the very bottom of the hollow, and no other material than the moss and moss-roots had been used.

"The eggs, of which there were three, are white boldly, but not very thickly, spotted with light reddish, the spots being most numerous towards the larger end, at the *extremity* of which they form a fairly distinct ring. The texture is fine and close but glossless, and the shell is strong in proportion to the size of the egg."

The three eggs measure 17.8×13.0 , 17.9×13.2 and 17.5×13.0 mm.

(450) *Certhia familiaris hodgsoni* Brooks.

THE NORTH-WEST INDIAN COMMON TREE-CREEPER.

Certhia familiaris hodgsoni, Fauna B. I., Birds, 2nd ed. vol. i, p. 434.

Hodgson's Tree-Creeper, as this bird has hitherto been called, is a resident from Garhwal to North-West Kashmir and along the outer ranges as far West as Murree, where both Rattray and Buchanan found it breeding.

There is only one short note in Hume's 'Nests and Eggs,' by Brooks, by whom "it was seen at Gulmurg and also at Sonamurg, where Captain Cock took a few nests. The egg is much more densely spotted than that of the English Creeper, so as almost to hide the reddish-white ground colour."

Rattray says: "Very rare. I once found a nest with three very hard-set eggs on the highest point near Murree, shooting the hen bird off the nest. Height about 7,500 feet. Had I not shot the bird I should have taken it for *C. himalayana*. It is possible birds are missed on this account."

Later both Rattray and Buchanan found other nests at Murree, and Buchanan has a note:—"Nest in a split fir, just under the bark at nearly 40 feet up, made of feathers, moss and rotten wood." This clutch had six eggs, whilst one set sent me by Rattray had five.

To me the two clutches look exactly like any other clutch of eggs of the European *Certhia familiaris*. They are nicely and freely stippled with reddish specks which are more numerous at the larger end, where in one clutch they form well-defined zones. At the same time I have seen many clutches of the British and European *Certhias* more heavily spotted than these are. They are of quite the usual texture and shape of all Tree-Creepers' eggs.

Twenty-five eggs average 15.8×11.9 mm. : maxima 16.8×12.6 mm. ; minima 14.8×11.1 and 15.0×11.0 mm.

Certhia discolor.**THE BROWN-THROATED TREE-CREEPER.****(452) *Certhia discolor manipurensis* Hume.****THE MANIPUR BROWN-THROATED TREE-CREEPER.**

Certhia discolor manipurensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 437.

This little Creeper, so far as is known at present, is confined to Manipur and the Chin Hills as far East as the Irrawaddy. East of the Irrawaddy it has not yet been recorded. It is a bird of the forests, both open and dense, and is said to be common from 3,000 feet up to at least 7,500

Messrs. Hopwood and Mackenzie obtained several nests of this bird in the Chin Hills, just South of Manipur.

Some notes by Mackenzie on eggs now in my collection run as follows :—

“One nest taken 29.4.14. Nest in a hole in a small tree; not a deep hole, but a place where a branch had broken off. It was shallow and open to the outside and about 12 feet up the tree, which was beside the pathway between Haingyaw and Tsibet, at about 6,000 feet elevation, and within three feet of the path. Hopwood was going in front when the bird flew out just after he had passed. We shot the female and found three eggs slightly set. The nest was a pad of fibres, moss and a few roots with a feather or two, not very large and hardly hollowed out at all.

“Another nest with four eggs, one unfortunately broken, was taken on the 1st of May, 1915, at Haingyaw, at about 5,000 feet. This was brought in by a Chin with the female bird. The nest, said to have been taken from a hole in a small tree about 6' up, was a pad made of fibres and moss, with one or two feathers, identically like that taken last year.”

Previous to this Hopwood had taken a similar nest with four eggs on the 20th April, and Mackenzie remarks :—“This tree-creeper is fairly common in the North Chin Hills, and the reason why we could not get the nests at first is because it is such an early breeder. I shot several young birds, one almost fully grown on the 12th May.”

The eggs differ from those of both *himalayana* and *familiaris* in being much more densely marked with tiny blotches and freckles, whilst the markings themselves are a deeper red-brown. There is no trace of any cap or ring in any of the eggs I have seen.

Eleven eggs, all taken by Hopwood and Mackenzie, average 15.9×12.3 mm.: maxima 16.8×12.1 mm.; minima 15.3×12.2 and 16.2×11.5 mm. Two other eggs taken by Grant measure 16.5×12.4 and 15.9×13.0 mm.

Salpornis spilonotus.**THE SPOTTED-GREY CREEPER.****(456) Salpornis spilonotus spilonotus Franklin.****THE BOMBAY SPOTTED-GREY CREEPER.**

Salpornis spilonotus, Fauna B. I., Birds, 2nd ed. vol. i, p. 439.

Salpornis spilonotus spilonotus, ibid. vol. vii, p. 91.

This very aberrant little Creeper is found throughout a considerable portion of the plains of Western and Central India. The bird from Rajputana has been separated by Meinertzhagen under the name of *rajputanæ*. South of this it is found practically throughout the Bombay Presidency to Khandeish, whilst Blanford records it from Chanda, Srirancha and the Godavari Valley. It occurs also in Behar and other parts of the Deccan and Central Provinces.

Mr. Cleveland obtained the first nest and eggs of this bird at Gurgaon on the 16th April. "The nest was placed on a large ber-tree in a patch of preserved jungle, at a height of about 10 feet from the ground. It was cup-shaped, placed on the upper surface of a horizontal bough, at the angle formed between this and a vertical shoot, to which it was attached on one side, the other three being free. The nest itself is unlike any other that I have seen. It is composed entirely of bits of leaf-stalks, tiny bits of leaves, chips of bark, the dung of caterpillars, all cemented together everywhere with cobwebs, so that the whole nest is a firm but yet soft and elastic mass. The nest is cup-shaped, but oval and not circular; its extreme diameters are 4 and 3 inches respectively, its greatest height 2 inches; the cavity measures 2·6 by 2·2, and 1·1 in depth.

"The texture of the nest, as I have already said, is extremely peculiar; it is extremely strong, and though pulled off the bough on which it rested and the off-shoot to which it was attached, is as perfect apparently as the day it was found, bearing on the lower surface an exact cast of the irregularities of the bark on which it rested; but it is soft, yielding and flabby in the hand, almost as much so as if it was jelly. The nest contained two almost full-grown nestlings and one added egg.

"Another nest was found about 15' up in a tree. It was partly seated on and partly wedged in between the fork of two thick oblique branches, to the rough bark of which the bottom only was firmly cemented with cobwebs, the sides, as in the case of the first nest, being free and detached from its surroundings.

Messrs. T. R. Bell and J. Davidson have since taken a considerable number of these curious nests and eggs but I can find no records of theirs except a note of the former sent me with some eggs. He writes:—"The nests are shallow cup-shaped affairs made of a matted mass of scraps of leaf-stalks, leaves, bits

of bark and lichen, bound together with spiders' webs and decorated externally with lichen, spiders' egg-bags and caterpillar excretæ. The position selected is the horizontal branch of a tree where a vertical twig or shoot can be used as a support to the nest on one side. They are practically invisible when looked at from below."

They are very early breeders, and some birds must start breeding operations in the end of February. Most eggs are laid in March and a few in February.

The number of eggs laid seems to be two, very rarely three.

- * The eggs are almost *sui generis*, but I can match them with a few eggs of *Hippolais rama*. The ground-colour is a pale grey, in one pair with the faintest possible tinge of yellow, and they are sparsely speckled all over with small but well-defined spots of black or deep brown and with others, larger and less well defined, of pale grey or pale neutral tint, sometimes so faint as to require a magnifying glass to show them up. The texture is fine and close but not glossy.

In shape they are short regular ovals, very little smaller at one end than the other.

The average of six eggs is 16.9×13.05 mm.

There is nothing to show which sexes incubate or build the nests; the only birds (two) shot off the nests were both females.

(457) *Tichodroma muraria* Linn.

THE WALL-CREEPER.

Tichodroma muraria, Fauna B. I., Birds, 2nd ed. vol. i, p. 441.

This beautiful little bird, which is found over a great extent of mountainous Europe and Asia, breeds throughout the Himalayas at high elevations up to 16,000 feet and down to about 12,000 feet.

The only collector who has actually ever found a nest within Indian limits is Whymper, who noticed that they were breeding in the Nila Valley in Garhwal and "found a nest in a boulder cliff at 12,000 feet, but they were feeding young on June 12th and the young birds left the nest on June 27th, when I secured one of them. The nest was nearly two feet inside, wedged between two boulders, and was a pad of wool and hair and grass."

Whitehead "on the 12th July came across a newly-fledged family at 15,000 feet on the Safed Koh in the shale scree and shot one specimen." He adds: "Whymper also informed me in a letter that a friend of his had actually found a Wall-Creeper nesting somewhere on the North-West Frontier, but had been unable to get at the nest."

In Winter this bird descends right down to the foot-hills of the Himalayas.

The eggs number four to six and are pure, but rather dull, white, with a few specks of black or deep red-brown at the larger end.

In shape they are broad ovals, often decidedly compressed at the smaller end.

Twenty-six eggs average 21.3×14.9 mm. : maxima 22.7×15.7 and 20.8×16.0 mm. ; minima 20.0×14.0 mm.

They are early breeders, probably laying in the Himalayas in May, or even the end of April.

Family TROGLODYTIDÆ.

Troglodytes troglodytes.

THE WREN.

(458) *Troglodytes troglodytes nipalensis* Blyth.

THE NEPAL WREN.

Troglodytes troglodytes nipalensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 445.

This little race of our British Wren is found in Nepal and Sikkim to Bhutan. Garhwal seems to be the meeting-place of this and the Kashmir *neglectus*, but two birds obtained by Whympers were undoubtedly *nipalensis*. On the other hand, Osmaston considered two specimens obtained by himself to be referable rather to *neglectus*.

Its breeding range is between 11,000 and 13,000 feet, elevations higher than those at which the Kashmir Wren breeds, though this is sometimes found at 10,000 feet. Stevens records it as resident from 9,000 to 12,000 feet in Sikkim and "numerous at this extreme limit in winter." Stevens describes its haunts as "the rocky beds of mountain streams, fallen decaying trees in the Pine-forests ; equally at home amongst the snow in inhospitable depths of the forests or the precincts of the flimsy dwellings of the shepherds."

The only note of this Wren's breeding is that by Whympers (Journ. Bomb. Nat. Hist. Soc. vol. xvii, p. 818, 1907):—"I take this to be the species, or rather race, of Wren inhabiting these parts as, although neither pale nor rufous, it is decidedly inclined to be dark and the hind toe and claw are large, measuring .6 of an inch. Two nests were found with eggs and one with three young birds, all in crevices of Birch-trees, from 20 to 30 feet up, a decidedly different situation to all the nests of the Kashmir Wren I have seen or heard of. The nests were large and domed, made of moss, grass and leaves and thickly lined with feathers. The eggs were white with a few red specks."

Three sets of eggs, which I owe to Whympers's kindness, in my collection are two each of five and one of six. Two of these are the

nests he refers to above as taken in crevices in Birch-trees, and the third was one taken in a tumbledown "chappa" or shepherd's hut, all at about 11,000 feet in the Dundar and Nila Valleys between the 6th and 26th June; as, however, Whymper also found young in nests in early June we may accept late May and all June as the normal breeding season.

The eggs are a pure, rather chalky white with a few red specks at the larger end, in one or two eggs stippled faintly and sparsely over the whole surface, in one or two absent altogether.

Seventeen eggs average 17.4×12.7 mm.: maxima 18.0×13.1 mm.; minima 16.4×12.8 and 17.4×12.2 mm.

Compared with those of *T. t. neglectus*, the Kashmir bird, these eggs are a good deal bigger.

(460) *Troglodytes troglodytes neglectus* Brooks.

THE KASHMIR WREN.

Troglodytes troglodytes neglectus, Fauna B. I., Birds, 2nd ed. vol. i, p. 446.

This Wren is found over the whole of the North-West from the frontier, throughout Kashmir, to the Simla States. On the Safed Koh Whitehead reported it to be fairly common, from 8,000 feet upwards, chiefly in Juniper-scrub. He took one nest there on 15th June. In Kashmir it breeds in great numbers from 6,000 to 10,000 feet.

Brooks was the first to take its nests in Kashmir. Of these he writes:—"The Kashmir Wren is not uncommon in the pine-woods of Cashmir, and in habits and manners resembles its European congener. I found two nests. One was placed in the roots of a large upturned pine, and was globular with entrance at the side. It was profusely lined with feathers and was composed of moss and fibres. A second nest was placed in the thick foliage of a moss-grown fir-tree and was about 7 feet from the ground. It was similarly composed to the other nest."

Davidson, writing of Kashmir, whence I have received many nests and eggs from various collectors, says that he "found many nests in the first fortnight of June. These varied much. Some were placed in the roots of fallen pines, and were large structures of moss, lined with feathers and with the entrance on one side. Others were in holes in banks or dead trees, and consisted merely of a few feathers separating the eggs from the rotten wood."

The upturned roots of a fallen tree seem as favourite a site in India for our little Wren as it is in England for the English Wren. Osmaston, who took several nests of this Wren in the Lidarwat Valley at about 9,000 feet, found two of them in the upturned roots of fallen Silver Firs, about 4 feet and 6 feet from the ground; another he found under a fallen log. It is noticeable that in two

of his nests lichen was one of the materials used on the outside and that hair was mixed with the feathers in the lining. All his nests were taken in the month of June.

Whitehead found one on the Safed Koh "on his cook-house roof, made of grass well lined with fur and feathers, at B-kba Dhana, 10,500 feet," containing five eggs.

Another unusual place is recorded by Osmaston, who found a "nest in a hole in a dead birch-tree, an old woodpecker's nest, 15' from the ground. The Wren's nest was domed as usual, though the dome was here quite unnecessary, a roof being provided by the wood of the tree."

The nesting season seems to be extraordinarily regular. Hume says the nesting season is May and June and Brooks took one nest in the earlier month, whilst Ward also took one or two at the end of that month, but practically every other record is for June. Even at their highest elevations June seems their chief breeding month, very few birds extending their breeding operations into July.

The normal full complement of eggs is four or five, but six have been taken, and I have one incubated set of three taken by Col. A. E. Ward. Four or five seem to be laid about equally often.

The eggs have a white, rather a chalky white, ground and occasionally one or two eggs are immaculate, whilst the others are more or less marked, but I have one clutch of five all pure white. Brooks also refers to one of his clutches as unmarked white. Most eggs are lightly freckled or speckled with tiny pin-point marks of light red or dark red, these being rather more numerous at the larger end, where they sometimes form a fairly definite ring. Some eggs have the specks distributed evenly over the whole surface; rarely the specks are large enough to be called blotches, and in such cases are generally confined to the big end. I have also one egg in a curious clutch of four handsomely marked with deep red at the larger end and sparsely freckled elsewhere with the same colour. In two other rather smaller eggs of the same clutch the markings are fewer, and in the fourth egg, a pigmy, they are absent.

Sixty eggs average 16.8×12.3 mm.: maxima 18.1×12.1 and 17.6×13.2 mm.; minima 15.1×12.2 and 15.8×11.3 mm. The pigmy referred to above measures only 14.6×10.3 mm.

The shape varies a great deal. Most eggs are fairly long ovals, decidedly pointed at the small end, but others are broad ovals and a few are almost elliptical. The texture is fine and close but, as a rule, there is very little gloss, a few clutches only showing this at all strongly, while it is noticeable that the least marked are the most glossy.

(461) *Troglodytes troglodytes tibetanus* Walton.

THE TIBETAN WREN.

Troglodytes troglodytes tibetanus, Fauna B. I., Birds, 2nd ed. vol. i, p. 448.

This race of Wren seems to be confined to Tibet but its exact limits of distribution are not known. Walton shot several specimens at Khamba Jong in the Autumn. Ludlow says it is common at Gyantse in Winter at 12,000 feet and over but that he has never seen it there in Summer, and suspects that it ascends still higher for breeding purposes.

I have one clutch, supposed to be that of this bird, taken by a native and sent me by D. Macdonald with the following note :—
“7.6.19. Phari, Tibet, about 14,000 feet. Nest of roots, leaves, grass, moss and lichen, densely lined with feathers. A ball about 6” across either way, with small circular entrance at the side near the top; placed in a hole among the roots of a tree, two or three feet above water, on the banks of a stream.”

The eggs are undoubtedly those of a Wren, quite indistinguishable from many of the lightly-freckled specimens of the Kashmir Wren. They measure 17.0×12.5 , 16.5×12.3 , 17.2×12.4 and 16.1×12.1 mm.

(463) *Elachura haplonota* Stuart Baker.

THE PLAIN BROWN WREN.

Elachura haplonota, Fauna B. I., Birds, 2nd ed. vol. i, p. 450.

Only one specimen of this bird has so far been obtained, and that was trapped on its nest on a peak of the Barail Range above Hungrum at about 6,000 feet. Of this I wrote in ‘The Ibis’ as follows :—

“On the 11th May, 1891, I was engaged in visiting numerous nests which had been previously marked down for me by some Naga boys. On being shown a nest built under a big log, which had fallen so as to rest on two rocks, and was thus slightly raised from the ground, I at once saw that it was new to me so, instead of taking the eggs, I sat down a short distance away for a chance of shooting the parent birds. I sat thus for half an hour, but no bird visited the nest, though two small brown birds kept scuttling backwards and forwards over the log, now hidden in the moss, now perched for a moment on one of the bunches of orchids that grew all over it. In their actions they closely resembled *Pnoepyga pusilla*, and as that bird is very common at Hungrum I thought they must be of that species.

“The Naga who was with me set some mithna-hair nooses on the nest before leaving it, and that same evening we found one of the birds caught in them. The nooses were again set in the hopes that the mate might be caught. On the morning of the 12th, on visiting the nest, we found that the bird had not returned and,

though I waited about a long time in the hope of obtaining a shot at it, it did not appear, so we took the nest and eggs, of which there were only three. The nest was placed on a pile of dead leaves, broken twigs and branches, which filled up the hollow below the fallen tree, and was supported on either side by a broken branch. The greater part of the materials consisted of skeleton leaves, bound together with dark coarse fern-roots, a few bents and also one or two fine elastic twigs; the outermost part of the nest was of dead leaves of all kinds, very loosely bound together, and contrasting with the inner part, which was very compactly lined with skeleton leaves alone. In shape the nest is a deep cup, with the back wall much prolonged, though not enough so to in any way form a roof or porch. The measurements of the nest are as follows:—Outside, not including the loose leaves and twigs, the broadest part is 3·3 inches, the length of the back wall 5·4, of the front wall 2·44; depth of interior from edge of front wall 1·4, diameter 2·0.

“The eggs, as I have already said, were three in number, they are very large in proportion to the size of the bird, measuring $17\cdot0 \times 13\cdot2$, $17\cdot2 \times 13\cdot0$ and $17\cdot4 \times 13\cdot1$ mm. One egg appears to be pure white unless very carefully examined, when a few excessively pale reddish marks may be discovered about the larger end. A second egg has these marks quite distinct, though still very minute. The third egg has the marks much larger and, in fact, almost blotches. The marks are the same pale reddish-brown as in the other eggs and form a distinct ring towards the larger extremity, some dozen freckles being scattered over the rest of the egg. The surface of the eggs is close, hard and rather glossy and the shell is decidedly stout. In shape the eggs are rather broad ovals, considerably depressed and pointed at the smaller end; they were perfectly fresh when taken.”

The nest was found in deep forest of stunted Oak, with an undergrowth of bracken, Begonias and Jasmine and with a wealth of moss, ferns and orchids on every tree, fallen or standing. The ground was a steep hill-side, much broken with rocks and huge boulders, covered, like the trees, with rich vegetation, whilst the whole place was always damp but, owing to the elevation, never hot.

Spelæornis longicaudatus.

THE LONG-TAILED WREN.

(464) **Spelæornis longicaudatus longicaudatus** (Moore).

THE ASSAM LONG-TAILED WREN.

Spelæornis longicaudatus longicaudatus, Fauna B. I., Birds, 2nd ed. vol. i, p. 452.

This is a very local little Wren, being only found in the hills South of the Brahmapootra in Assam. It has not been found in

Manipur, and neither Coltart nor I ever met with it in the Eastern Naga Hills.

It is a very sedentary bird and, breeding and non-breeding seasons alike, seems only to be found between about 3,500 and 6,500 feet, keeping invariably to the deepest evergreen forest and preferring those in which, though the trees may not be very dense, there is ample undergrowth. Even in these it keeps to rocky ravines or to the steeper hill-sides where rocks and boulders, often of great size, crop up all over the ground, just as densely covered with long green moss, ferns and orchids as are the trees around them.

In these forests, tucked away between two boulders, nearly hidden by the roots of some stunted Oak, or just snuggling among the weeds and ferns on a steeply sloping bank, it builds its very comfortable though rather shabby-looking nest. This is one which can never be mistaken for that of any other genus breeding within our Indian limits.

In shape it is generally domed or egg-shaped but, occasionally, it is a very deep cup with some very definite natural protection overhead to take the place of the usual roof. The outer part of the nest is made almost entirely of dead leaves, rather loosely put together and mixed with a few roots and scraps of grass or, sometimes, a bamboo-leaf or two or bits of bracken. All these materials are dead, dark in colour, very rotten and almost always soaked through, so that as one picks up, or tries to pick up, the nest they all fall to pieces in one's hands. Inside all this rotten stuff is built a compact, well put together structure of roots, leaves and grass, all dead but not rotten, so that, even when damp, as it generally is, it holds together when handled. Finally, inside this again comes the lining, which distinguishes the nest at a glance from all others. To look at this is a papier mâché material, about one-eighth to one-quarter of an inch in thickness, covering the whole of the bottom of the nest and the greater part of the sides. It is laid on perfectly smoothly, evidently whilst in a wet and pulpy condition, for it fits into the crevices of the surrounding material and holds it together. What all its component parts are I do not know, for I have never had it analysed but, among them, are skeleton leaves and a very soft fibrous material, almost certainly the inner bark of a tree. When placed in position the pulp hardens and forms an absolutely damp-proof lining to the nest, so that even when placed in sites which drip moisture the eggs and young are kept dry and warm.

Roughly speaking, the nests measure about 5 inches by 4, but it is generally impossible to get at them to measure properly and, as I have already said, once handled they disintegrate and fall to pieces. The inner papier mâché cup is about 2 to 2½ inches across and rises 2 inches up the sides at least, sometimes working into the top.

The nest is always placed on the ground, though between the ground and the nest there may be débris of all kinds; or it may

be placed in among or on boulders which keep it' from actual contact with the earth. Always, too, it is built in evergreen forest. In North Cachar it kept principally to the Oak forests, but in the Khasia Hills it preferred a very dense forest of mixed Oak and Rhododendron with a few odd Pines. This forest was just as wet and just as broken up with rocks and boulders, whilst the green undergrowth and moss were just as luxuriant as in the Oak forests of Cachar.

Most eggs are laid in May and June but many birds breed in April, and I have taken full clutches as early as the 4th of that month. I have no notes of any clutches taken in July. The full clutch of eggs is four but three only are often laid ; I have never taken five.

The ground of the eggs is normally white but, very rarely, there is just the faintest tinge of cream or pink. The white is almost, but not quite, a china-white, though it is never the more chalky white of *Pnoepyga* or *Troglodytes* eggs. The markings consist of spots or small blotches of reddish-pink to reddish-brown, usually quite small and most often scattered freely, but not densely, over the whole surface, though always a little more numerous at the larger end than elsewhere. In some eggs the spots are decidedly more numerous at the big end and in a few form indefinite zones. In one or two clutches the markings are larger and fewer, and I have one clutch in which they are nearly all concentrated at the large end and yet another clutch in which one egg is pure white, the other three being normally spotted.

The texture is fine, hard and close, the majority of eggs having a fair gloss, whilst in a few the gloss is highly developed. In shape they are broad obtuse ovals and are very consistent.

Fifty eggs average 18.4×14.9 mm.: maxima 19.9×15.0 and 18.6×15.9 mm.; minima 18.0×15.0 and 18.4×14.5 mm.

(466) *Spelæornis longicaudatus sinlumensis* (Harington).

THE SINLUM LONG-TAILED WREN.

Spelæornis longicaudatus sinlumensis, Fauna B. I., Birds, 2nd ed. vol. i, p. 453.

According to Harington this race of Wren is found only in the Bhamo Hills but, with more material, it will probably have to be merged with the Watan form under the name of *kauriensis*, of which, at present, there are only two specimens in the British Museum.

The nests and eggs have been taken by Grant, Harington and Cook. Harington gives the following description of the nest (Ibis, 1914, p. 6):—"At Sinlum, on the 29th April, 1905, a Kachin brought me a nest containing three eggs which I could not identify, the nest being of a type entirely new to me. The nest was placed on a bank in a very damp locality, the outside consisting of a loose

ball of grass and leaves, which soon fell to pieces; inside was a remarkable little cup made of some whitish substance, which had been worked up into a sort of papier-mâché; this was quite hard and evidently waterproof, a very necessary arrangement, as the bottom of the nest, when brought to me, was quite damp. From the peculiarity of the nest, and from its situation, I think there can be little doubt that it belongs to this species. When I was up in Sinlum in 1908 I procured specimens of *U. sinlumensis* in the same valley in which the nest had been found, but failed to find any nest."

Apparently, however, nests were brought in to him by natives, as I have a pair of eggs and a single one from Harington dated 25.5.08 and 12.6.08, both taken at Sinlum at about 6,000 feet elevation. Once seen, the nest is, of course, unmistakable.

Harington describes the three eggs brought to him as "different to those of *A. oatesi*, two being a spotless white, the third having a faint pinkish ground-colour sparingly streaked with darker pink."

Of the five eggs in my own collection two (Harington's) are exceptionally well marked, with a ring of deep reddish spots round the larger end; another single egg is feebly marked with pinkish, whilst the pair taken by Cook are pure white.

The average of eight eggs, including the three in Harington's collection, is 18.9×14.3 mm.: maxima 20.7×15.6 mm.; minima 18.0×14.1 and 19.0×13.9 mm.

In texture and shape, as well as in coloration, the eggs of all the Long-tailed Wrens seem to be very much alike.

(468) *Spelæornis longicaudatus reptatus* (Bingham).

THE MEKONG LONG-TAILED WREN.

Spelæornis longicaudatus reptatus, Fauna B. I., Birds, 2nd ed. vol. i, p. 455.

This Wren has been recorded from East of Kengtung in the Mekong Valley at about 7,000 feet and on the Shweli-Salwin Divide, in Yunnan, at about 8,000 feet.

There is nothing on record about the breeding of this form, but two clutches of eggs in my collection from Thaungyi, in the Southern Shan States, may be those either of this race or *sinlumensis*. They are *Spelæornis* eggs all right but the skins were not good enough for racial differences to be recognized.

The eggs are like well-marked specimens of the Assam Long-tailed Wren and average about 18.5×14.9 mm.

Nothing is known about its breeding haunts, but these will certainly prove to be in dense cover, such as is frequented by the other species.

The breeding time is probably April, as both my clutches were taken in that month, on the 16th and 28th respectively. Both were quite fresh.

(469) *Spelæornis longicaudatus oatesi* (Rippon).

THE CHIN HILLS LONG-TAILED WREN.

Spelæornis longicaudatus oatesi, Fauna B. I., Birds, 2nd ed. vol. i, p. 455.

The Chin Hills Long-tailed Wren is confined entirely to the country from which it was named, frequenting the hills between 5,000 and 9,000 feet.

Although on the whole it frequents much the same kind of country and forest as the Assam form, it apparently is also sometimes found in rather more open scrub and jungle.

Venning was the first to take the nest and eggs of this bird, which he describes in a letter quoted by Harington (*Ibis*, 1914, p. 16) :—
“One nest was obtained on the 30th April, on a sloping bank of dried grass beneath some trees. The bird was shot as it left the nest. The nest was a large oval-shaped domed structure, composed of an outer layer of dead leaves, canna-leaves, coarse grass etc.; inside was a layer of grass-stems, fibres and a little moss, the cup being lined up to the level of the entrance with a plaster about one-sixteenth of an inch thick, composed, as far as I could determine, of a substance which looked like chewed thistledown or chewed grass. The bottom of the nest, when first found was quite moist from contact with the damp ground. The dimensions of the whole were: Exterior height six inches, diameter back to front five inches, side to side four inches. Entrance near the top about two inches across by one and a half high. Interior dimensions two inches each way; depth of cup inside from entrance about one inch. Eggs three in number, dull white, sparingly freckled with reddish and faint purple.”

Apparently two other nests were taken near Haka, one with two eggs on the 24th May and one with three eggs on the 27th April, 1910.

In Cook's collection I found two clutches taken on Mt. Victoria, Chin Hills, one of three and one of four eggs, marked, in his handwriting, 19.4.13 and 12.3.14.

Both Mackenzie and Hopwood also found nests and eggs of this Wren in the Chin Hills, Mackenzie taking one on the 29th April and one on the 5th May. The former contained three hard-set eggs and the latter a single fresh egg.

It would appear, therefore, that the Chin Hills bird is an earlier breeder than the other races, commencing to lay in early March and from then up to the end of May.

Fourteen eggs in my collection, including nearly all those referred to above, are just like the eggs already described of the Assam form but, curiously enough, nearly all have a distinct tinge of pink in the ground-colour and the pure white ones are the exception.

They average, with six others, twenty in all, 18.1×14.6 mm. : maxima 19.2×15.0 and 19.0×15.2 mm. ; minima 17.2×14.0 mm.

(470) *Spelæornis caudatus* (Blyth).

THE TAILED WREN.

Spelæornis caudatus, Fauna B. I., Birds, 2nd ed. vol. i, p. 456.

So far as is known at present the Tailed Wren is confined to Sikkim between elevations of 8,000 feet and over, its lowest record being 7,400 feet on Jore Pokhari by Inglis. Mandelli, apparently, found it common above Darjiling, and Masson sent me a supposed nest and eggs from the Singile La Ridge.

A note in Hume's 'Nests and Eggs' on the breeding of this bird and my own information from Masson disagree so much that I give the two in full :—

"The Tailed Wren, according to Mr. Hodgson's notes, lays in April and May, building a deep cup-shaped nest about the roots of trees or in a hole of fallen timber; the nest is a dense mass of moss and moss-roots lined with the latter. One measured 3·5 inches in diameter and 3 in height, internally the cavity was 1·6 inch in diameter and about 1 inch deep. They lay four or five spotless whitish eggs, which are figured as broad ovals, rather pointed towards one end and measuring $0\cdot75 \times 0\cdot54$ inch."

Masson's nest is as follows :—"The nest is not in the least like that described by Hume but is similar to that of *Urocichla* (= *Spelæornis*) *longicaudatus*. The outer part is made of dead leaves, fine twigs, bracken and grasses much matted together and forming a fairly compact egg-shaped structure, with the entrance at the uppermost smaller end." The lining is of the typical papier mâché character of that of the Long-tailed Wren but, before being sent me, had got much broken, and it is possible that it was never quite so well welded. Another difference was its colour. The lining of the nest of the Long-tailed Wren varies from almost white to a pale dirty yellow, whilst the lining in the nest sent me from Sikkim was an earthy brown and looked as if it had been made from a brown fibre. When crumbled in the fingers it looked like crumbled tan.

Three other nests taken by Masson were all similar and all four were found in heavy wet evergreen forest over 8,000 feet.

Two nests contained four eggs each and two contained three each. In colour, shape and texture the eggs exactly resemble those of *Spelæornis longicaudatus*.

Fourteen eggs average $18\cdot1 \times 14\cdot1$ mm.: maxima $19\cdot0 \times 14\cdot2$ and $18\cdot6 \times 14\cdot5$ mm.; minima $17\cdot3 \times 14\cdot2$ and $17\cdot9 \times 13\cdot8$ mm.

They were taken on the 17th April, 23rd May, 14th and 28th June, 1908.

No birds were sent me with the eggs and only one nest.

Pnoepyga albiventris.

THE SCALY-BREASTED WREN.

(471) **Pnoepyga albiventris albiventris** Hodgs.

THE NEPAL SCALY-BREASTED WREN.

Pnoepyga squamata squamata, Fauna B. I., Birds, 2nd ed. vol. i, p. 458.

Pnoepyga albiventris albiventris, *ibid.* vol. viii, p. 618.

Now that Kinnear has separated the North-Western form of this race, the range of the present bird does not extend West of Nepal, whence Hodgson named it. East it extends to Assam, Manipur, Chin Hills and Western Burma to Tenasserim. Both Gammie and Mandelli took the nest and eggs in Sikkim, where they found them breeding in wet ravines in forest at about 5,000 feet, whilst Blanford records them as ascending to 10,000 feet. In Assam they breed from about 3,500 up to at least 6,000 feet, and keep entirely to deep forest, evergreen in character and pretty thick, though not necessarily with very dense undergrowth. Except that Mandelli describes his one nest as cup-shaped, neither his nor Gammie's differ from those taken by myself, and I therefore quote theirs in full. Gammie writes:—"I found two nests of the Scaly-breasted Wren this year within a few yards of one another. They were on a small, moist ravine in the Rishap forest, at 5,000 feet above sea-level. One was deserted before being quite finished, and the other was taken a few days after three eggs had been laid. The two nests were alike and both were built in the moss growing on the trunks of large trees, and within a yard of the ground. The only carried material was very fine roots, which were firmly interwoven, and the ends worked in with the natural moss. These fine roots were worked into the shape of a half-egg, cut lengthways and placed with its open side against the trunk, which thus formed one side of the nest. Near the top the side was not quite close to the trunk, and by this irregular opening the bird entered. Internally the nest measured 3 inches deep by 2 inches in width. I killed the female off the nest."

Mandelli's nest "was placed amongst some small bushes projecting out of a crevice of a rock about three feet from the ground. It was completely sheltered above but was not hooded or domed; it was, for the size of the bird, a rather large cup, composed of green moss rather closely felted together and lined with fine blackish-brown roots. The cavity measured about 2 inches in diameter by 1 in depth."

This last nest is of a very unusual character and I have seen none like it. Most of the nests taken by myself were like those taken by Gammie, whilst others have been round balls of moss, always

domed, and just like those of the Brown Wren, which I describe very fully later on.

The eggs vary from three to five in number and are pure white, rather long ovals in shape, with the small end rather pointed. The texture is very fine, fragile and glossless.

Fifty-four eggs average 19.1×14.1 mm.: maxima 20.9×15.1 and 20.6×15.3 mm.; minima 16.9×13.9 and 17.1×13.1 mm.; the minima are almost pigmy eggs.

In the 'Fauna' there is some mistake in the dimensions given for the eggs of this bird, made by myself, I fear, in copying from my notebooks. The great difference in the size of the eggs of the typical race and Kinnear's *pallidior* is very remarkable.

The breeding season is from the middle of April to the middle of June. Both sexes take part in incubation but I cannot say what part each takes in nest-construction.

(471 a) ***Pnoepyga albiventris pallidior*** Kinnear.

THE WESTERN SCALY-BREASTED WREN.

Pnoepyga squamata squamata, Fauna B. I., Birds, 2nd ed. vol. i, p. 458 (part.).

Pnoepyga albiventris pallidior, *ibid.* vol. viii, p. 618.

Kinnear's race of this Wren is found from the Sutlej Valley to Garhwal and Dharmasala.

This Wren seems to breed at far greater heights as a rule than does the typical form. Whymper found it breeding at 12,000 feet in the Garhwal Hills, Osmaston found it at 11,000 feet in the Tons Valley in the same hills, whilst Mathews took its nest at 10,500 feet in the Bhilung Valley.

The latter describes the nest taken by him as follows (Journ. Bomb. Nat. Hist. Soc. vol. xxv, p. 496, 1918):—"The nest was built almost entirely of moss, and was situated under an overhanging moss-clad rock on the side of a ravine. It was domed, with a hole at the side, and contained three fresh eggs, pure white with the exception of two or three reddish-brown specks on two of the eggs. They seemed very large for the size of the bird, and measured 0.8×0.61 and 0.79×0.6 mm."

Osmaston took several nests in Birch and Silver Fir forest, and two also were built on the vertical faces of moss-covered rocks, and in construction like those of Mathew's.

Whymper's nest, again, was similar in all respects.

Fifteen eggs average 21.5×15.6 mm.: maxima 22.9×15.9 and 22.3×16.0 mm.; minima 20.0×15.0 mm.

Pnoepyga pusilla.**THE BROWN WREN.****(472) Pnoepyga pusilla pusilla (Hodgs.).****THE HIMALAYAN BROWN WREN.**

Pnoepyga pusilla pusilla, Fauna B. I., Birds, 2nd ed. vol. i, p. 459.

The Brown Wren is found from Nepal and Sikkim to Eastern Assam, extending through the Chin, Kachin and Bhamo Hills to the Shan States and Karenni.

In Sikkim Stevens gives its range from the lower hills up to 6,000 feet, but a specimen was obtained by Inglis on Tonglo at 10,000 feet. In Assam it occurs from about 3,000 feet up to the higher hills to at least 7,000 feet and possibly higher.

It haunts very much the same kind of country as its larger relative—wet green forest, grown over with mosses, orchids and creepers, the ground broken up by ravines, rocks and boulders, where it scuttles restlessly backwards and forwards like a little mouse.

I can add nothing to my original description of its nidification given in 'The Ibis' (1895, p. 322) :—

"This little Wren constructs two types of nests, very different from one another in character, so much so that one would almost imagine them to be built by birds of different species. Perhaps the most common position selected is one on the trunk of some tree that is covered with long pendent moss, a description of any one of which would do almost equally well for the rest.

"Wandering along a track cut through heavy evergreen forest, the trees on either side covered with the most luxuriant growths of all kinds, I was attracted by the unusual heaviness and length of the brilliant green moss which covered the whole surface of the trunk of a large tree that grew beside and hung over the path. Going close to examine it, I saw a small bird fly from out of the moss at about the level of my head and, putting in my fingers whence it had flown, I discovered a nest with three eggs.

"The first work of the bird seems to be to attach some of the loose lower ends of the moss to small rough projections on the bark of the tree, so as to form a rough loop beside it. It then works more and more moss into the loop, not tearing it from the tree, but using it as it grows, until it has a firm basis to work on. As soon as this is obtained, it collects quantities of the fine black roots of the same moss and works these in with the lining material already used, so that finally it has a beautiful little pad securely fastened inside the living green moss on the tree. The depression in the pad for the eggs to lie on is rather shallow, about half an inch, while it may be about 2³/₄ inches across. Eventually, of course, the size much depends on the luxuriance of the moss in which it is

placed, but the comparatively solid base is generally somewhere between $2\frac{1}{2}$ and 3 inches in diameter, its depth seldom exceeding an inch and, often, being considerably less. No artificial entrance is required, as the birds can easily slip in and out between the tree and the moss.

"Most nests which I have found built thus against the sides of trees have not been very low down on them, the majority being placed at a height of from 4 to 6 feet from the ground, while I have taken others at heights of from 10 to 12 feet from it, and one fully 20 feet from the ground.

"The other type of nest is not quite so commonly found as the last and I should think that the kind already described numbers about 3 in 5.

"The nest I am about to describe was found in the same evergreen forest as the others, but whereas that was taken on a lofty peak, over 4,300 feet higher, the present one was taken in a valley at the foot of the peak and a thousand feet lower.

"In this valley, in a rank tangle of grass and bushes, lay the remains of a once mighty tree, its rapidly decaying trunk obliterated with dense masses of ferns, mosses and orchids of all kinds, among them the most prominent being the sweet-scented *Celogyne ocellata* and *Dendrobium densiflorum*. Stepping on this trunk, and clutching for assistance at the plants as I climbed, I disturbed a pair of Brown Wrens, so at once slipped quietly down again and, leaning against a tree close by, waited until they should return. In a very few minutes back they both came and, after bustling about for a short time in a very consequential manner, disappeared into what looked like a ball of live moss, tucked away among a mass of yellow-flowering orchids. On approaching nearer, however, I found that the seeming lump of moss was in reality a most beautiful little globular nest, made with the brightest and freshest moss and lined with the finest roots of the same. It was wedged in well under the orchid and rested on the remains of a small branch which still jutted out from the trunk. The leaves and flowers of the orchid hanging over the entrance concealed it from any but the most careful search, while the brilliantly green moss which the bird had selected was exactly like that growing in luxuriant clumps around it. Altogether it was, both in itself and in its surroundings, one of the most beautiful little bird residences I have ever seen. Horizontally it was about 3" in diameter and about an inch more in height. The cavity measured about 2" or rather less, while the entrance was about an inch wide."

Nearly all Osmaston's nests were found by him built in the moss hanging down the face of vertical rocks in damp shady forest at about 6,000 feet elevation. These in construction were like the nest first described above. No nest contained more than three eggs.

In Assam they breed from April to June, most eggs being laid in early May; in Darjiling Osmaston took nests in June and July.

In Assam I think four was generally the full complement but often three only, while I have found two incubated.

They are pure white and are of fine close texture but have little or no gloss and are very fragile. In shape they are rather broad ovals but vary much, and fairly long pointed ovals are quite common.

If one judged by the size of the eggs one would imagine there must be two races of this little Wren, for the eggs of birds from South of the Assam Valley are much smaller than those from the North.

Fifty Cachar and Khasia Hills eggs average 17.1×13.1 mm.: maxima 18.9×13.0 and 18.3×14.0 mm.; minima 15.4×12.6 and 17.9×12.1 mm.

Twenty-five Sikkim eggs average 18.3×13.8 mm.: maxima 19.8×13.9 and 19.4×14.5 mm.

(474) *Sphenocichla roberti* Godw.-Aust.

THE CACHAR WEDGE-BILLED WREN.

Sphenocichla roberti, Fauna B. I., Birds, 2nd ed. vol. i, p. 461.

This curious Wren, more of a Creeper than a Wren in its habits, is found all along the ranges of hills South of the Brahmapootra and in Manipur but, apparently, is very rare everywhere. The farthest East we obtained it was from the Trans-Dikku Nagas in Lakhimpur, where a bird was brought to Coltart. I never saw it below about 5,000 feet and, so far as we know at present, it occurs above that elevation up to some 7,500 feet and probably much higher.

It keeps entirely to evergreen forest and, principally, to such as contains the largest trees found in the higher elevations.

I have seen but one nest of this bird but have had one or two others, exactly similar, brought in to me by Nagas on the Barail Range.

The one nest seen by me was taken on the 26th of May on Hengmai, Naga Hills, where it was first discovered by Godwin-Austen, just across the Cachar border, at about 6,000 feet. The nest, eggs and bird were brought in to me by a Naga, who afterwards showed me whence he had taken it. The nest consisted of a pad of moss on the top of a mass of fine grasses and a few tendrils, with no other lining than the soft moss. It was wedged behind a long hanging slip of bark on a very high tree and was about 20 feet from the ground. I sent the Naga up and he tore off the bark and brought it down for me to inspect, and I found sticking to it bits of the moss which had composed the nest.

It contained four eggs, pure white, broad, pointed ovals in shape and very fragile for their size, this, doubtless, in part owing to the fact that they were very hard set.

These four eggs measure from 20.7×17.0 to 22.3×17.4 mm.

Tesia cyaniventer.**THE SLATY-BELLIED WREN.****(475) Tesia cyaniventer cyaniventer Hodgs.****THE NEPAL SLATY-BELLIED WREN.**

Tesia cyaniventer cyaniventer, Fauna B. I., Birds, 2nd ed. vol. i, p. 463.

Garhwal is about the Western limit of the Slaty-bellied Wren, whilst it is found East along the Himalayas to the Chin and Kachin Hills and possibly Annam.

Normally this little Wren breeds at all elevations from about 3,000 up to 7,000 feet and has been said to occur in Sikkim up to 10,000 feet, though Stevens gives 6,000 feet as its limit. Osmaston, however, found nests higher than this and took two near Darjiling at 6,500 and 7,000 feet. In the Assam Hills it certainly breeds up to 7,000 but is more common between 3,500 and 5,000 feet. Here it keeps almost entirely to evergreen forest, frequenting those where there is ample undergrowth of bracken, ferns, weeds and moss, as well as bushes. Above all other places it seems to love tiny streamlets which work their way over slabs of rock and moss-covered boulders, through dense growth down steep and broken hill-sides. Here the shrill call of the male often drew one's attention to some particularly thick and uninviting spot, stumbling about in which one sometimes had the luck to disturb the sitting female from her nest.

The nest varies greatly, but more in position than construction. Nearly always it is a beautiful ball of vivid green moss, sometimes nearly spherical, at others time oval. The measurements of the former are some 5 inches in diameter and of the latter about 7×5, according to Hodgson, though rather smaller in most of those I have found. Except moss, I have seen no material used beyond such tiny scraps of bracken, grass or broken bits of leaf probably caught up by, and incorporated with, the moss. The lining is generally of moss-roots, sometimes of moss and roots combined, and sometimes just the green moss itself quilted into a little pad separate from the outer walls of the nest. The cavity is very small, little more than an inch in width or depth and sometimes even less. Hodgson says that it builds as its nest a huge globular affair of green moss and black moss-roots, "which it fixes in any dense dry shrub or clump of shoots, many of which it incorporates in the sides of the nest."

Both the nests found by Osmaston "were placed in low brushwood in rather open high forest about one foot from the ground, and were made entirely of moss and moss-roots, being domed, 7" high and 5" wide, and lined with a compact pad of fine moss."

Among the various situations in which the nest has been taken in Assam the following may be mentioned :—

In creepers or in the long streamers of moss growing against tree-trunks or, less often, against rocks. In these cases the nests are built in among the moss but not built into them, as are the nests of *Pnoepyga*.

In low thick bushes, fastened to several twigs, as found by Hodgson.

On steep banks among boulders and rocks, or sometimes just hidden in the moss and weeds.

The breeding season lasts throughout May, June and early July, but the latter nests are probably second broods, replacing first clutches of eggs or young that have been taken by vermin or otherwise lost.

The eggs number three to five, four being the usual full clutch.

The ground-colour is a very pale but rather bright pink, and they are stippled over profusely with tiny specks of very bright brick-red, in many eggs so densely that they look an almost uniform terra-cotta pink. In other eggs the markings are less dense and slightly larger, so that the ground-colour shows up and the eggs look equally mottled over with brick-red or, in a few cases, with a rather pinky red. Quite rarely one comes across a clutch which is boldly marked with reddish-brown, the markings always much more numerous at the larger end than elsewhere and sometimes forming a ring or cap. They are very handsome little eggs and like no others except very pale eggs of the next bird. In shape they are generally rather long but blunt ovals, a few only being broad ovals. In texture they are fine but there is no gloss, and they are fragile eggs.

Fifty eggs average 17.4×12.9 mm.: maxima 19.1×13.1 and 17.9×13.6 mm.; minima 16.8×13.2 and 18.0×12.0 mm.

***Tesia castaneocoronata*.**

THE CHESTNUT-HEADED WREN.

(476) ***Tesia castaneocoronata castaneocoronata* (Burton).**

THE CHESTNUT-HEADED WREN.

Tesia castaneocoronata castaneocoronata, Fauna B. I., Birds, 2nd ed. vol. i, p. 465.

This handsome little Wren extends from Garhwal, Nepal and Sikkim to the extreme East of Assam. It is not, apparently, found in Manipur, the Chin Hills or anywhere further East.

There are two accounts of the supposed nests of this Wren given in Hume's 'Nests and Eggs'; one of a nest taken by Hodgson and the other of one brought to Jerdon. Both are obviously quite incorrect and I do not quote them here.

I can find no notes since then on the breeding of this Wren other than a brief record of the fact that Inglis took a Cuckoo's egg from a nest of *Oligura* (= *Tesia*) *castaneocoronata* at Tonglu, Sikkim, 10,000 feet, and Osmaston's account (Journ. Bomb. Nat. Hist. Soc. vol. xv, p. 511, 1904), which describes habitat as well as nidification :—"This pretty little bird has the habits of a wren, and frequents brushwood under high forest, rarely ascending more than a few feet from the ground. It is common in the neighbourhood of Darjiling at all elevations up to 8,000 feet, according to season, and breeds in the upper portion of its range.

"It has a shrill call of 4 notes resembling that of *Culicicapa ceylonensis*, which it utters at intervals as it moves restlessly about in thick cover.

"The accounts of the nidification of this species given by Hodgson and Jerdon are conflicting, so that I was much gratified when I found a nest this year after several years of fruitless search in the past.

"The nest I found on the 8th July in an oak forest near the top of a ridge, elevation 7,500 feet. It was woven into, and suspended from, a branchlet of *Viburnum rufescens* at a height of 3 feet from the ground. The surrounding forest was dense and the vegetation was draped with moss. No attempt had been made, apparently, at concealment, but the nest might easily have passed for one of the numerous similar lumps of moss sticking in the shrubs and the branches of the trees.

"I disturbed the bird from her nest at 5 P.M., and she returned in 20 minutes. The nest contained two fresh eggs.

"It is neatly but rather flimsily built of moss; inside there is a layer of fine roots and, lastly, a scanty lining of feathers.

"The eggs are long ovals, with little gloss, of an almost uniform dark terra cotta or dull chestnut colour, duller and less uniform than the eggs of a *Prinia*, and with a very faint cap of mottlings of a darker shade at the larger end."

A second pair taken by Osmaston on 1st June, 1904, was in a nest like the first, "a globular ball of moss, lined feathers and suspended from a twig 4' from the ground in undergrowth of dense damp shady oak and chestnut forest."

The eggs in the second nest were similar to those in the first but lighter—I should call them a chocolate-red or very deep terra cotta—and one egg has one curious hair-line of black crawling here and there over it.

The two eggs taken by Inglis are like richly-coloured eggs of the Slaty-bellied Wren.

Nests and eggs taken in Assam vary in description from those taken by Osmaston to specimens still paler than those taken by Inglis and which could not be distinguished from those of the preceding bird. One very remarkable clutch, which I should think to be quite abnormal, has the ground pale cream marked with

rather streaky blotches of pinky red, fairly numerous everywhere and forming feeble rings round the larger end.

In shape the eggs are generally rather long ovals and in texture like those of the Slaty-bellied Wren, but Osmaston's eggs are rather shorter and less compressed at the smaller end—in fact they are really not very far from being ellipses.

Eighteen eggs average 17.4×12.9 mm.; maxima 18.5×13.4 and 18.0×13.9 mm.; minima 16.8×12.4 mm.

The breeding season in Assam is May and early June; in the higher ranges of Sikkim June and early July.

Both sexes have been caught on the nest and, therefore, the male certainly assists in incubation, but what share he takes in the labour of nest-building is not known.

Family CINCLIDÆ.

Cinclus cinclus.

THE COMMON DIPPER.

(477) *Cinclus cinclus cashmeriensis* Gould.

THE KASHMIR, or WHITE-BREASTED, ASIATIC DIPPER.

Cinclus cinclus cashmeriensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 2.

The Kashmir Dipper, of which *Cinclus sordidus* is only a dimorphic form, is found breeding over the whole of Kashmir, all along the Himalayas from the Afghan Frontier, through the Murree Hills, Simla States, Garhwal, Nepal, Sikkim and the Himalayas North of Assam as far East as the Dibong or the Brahmapootra, though we do not yet know which of these, or even the Dihong, forms the Eastern boundary. It apparently also breeds over a great part of S.E. Turkestan.

It breeds from comparatively low levels up to at least 12,500 feet and, possibly, up to 14,000 feet, at which elevation it is not uncommon even in Winter, having been recorded by Walton up to 15,000 feet in that season and up to 16,000 feet in Summer in Ladak by Ludlow, Osmaston and Meinertzhagen, and up to 17,000 feet by Wollaston. Whitehead found it breeding at 12,000 feet on the North-West Frontier and Whympers took nests at the same elevation in Garhwal.

How low down this Dipper breeds is not known, as it has not yet been ascertained whether, like the Brown Dipper, it has a Winter breeding season at low levels as well as a Summer breeding season at higher levels. Meinertzhagen merely says that my

belief that it breeds in the low valleys of Kashmir is incorrect, but gives no evidence either for or against this supposition. The lowest level from which I have received eggs is about 5,000 feet, a nest taken in Kashmir on the 5th April. The highest elevations from which I have nests are one from Guttadar, Khagan Valley, and two from Sheikhwas, Kashmir, taken at 12,000, 11,500 and 12,000 feet respectively, which were found on the 30th June and the 16th and 17th July.

It is still quite possible that the nests will be found in Winter at very low levels.

The nests are always placed on the banks of, or in the beds of, streams but the positions vary considerably. Very often they are placed on some small pile of rocks forming a tiny islet in a rushing stream; sometimes they are perched on the top of a stranded log, in among the débris which had collected there when the stream was higher, and looking very much like part of the same débris. Occasionally it is built on quite a bare part of the log, just kept in its place by the remains of some branch still adhering to the parent trunk. Often it is placed on or between rocks and boulders by the riverside or on some shelf of rock overlooking the stream. Sometimes it is built under a waterfall, every visit of the parent birds entailing a plunge through the falling cascade.

According to Osmaston they sometimes build their nests in crevices of rocks or under overhanging banks by streams.

The nest is a glorified and far from neat Wren's nest, a huge ball, sometimes round but generally Rugby-football-shaped. The materials vary considerably but the general effect is "rubbish." Some nests are made chiefly of moss mixed with grass, leaves and such various oddments as the Dippers can retrieve from land or water. In other nests there is no moss at all and grass and leaves form the major part of the nest, held together with creeper-stems and long roots. The nests taken by Osmaston in Ladak were "composed of dry grass and weed-stalks" and were, as are, nine out of ten nests, lined with dry dead leaves and dry grass.

One of the nests taken by Ward is described as made of grass, moss, roots and rushes.

No attempt seems to be made at concealment nor, really, is this necessary, as in most instances the nests look just like wind- and tide-swept rubbish caught by boulder or snag and, to the uninitiated, these are passed by time after time until some day a little brown bird is seen to dart out and either fly away or dive through the water into safety.

Whitehead, speaking of the nests he took on the North-West Frontier, says they are conspicuous when you know what they are but, until then, most inconspicuous. Of two nests found close together he writes in his notebook:—"This and last year's nests looked like lumps of dead turf. They were the size and shape of a football, rather flat, very solid, a felted mass of roots and moss

lined with grass." Of another he writes :—" Guttadar, 12,000 feet. Nest big, conspicuous and grass-domed, on a sod outlier of small islet."

Although, apparently, so roughly made, the nests withstand a lot of water, and some which are quite soaked outwardly are still dry and warm in the egg-cavities.

The breeding season lasts from early April to late July, earlier at the lower levels, later at the highest. The full clutch of eggs is four or five and I have never seen or heard of a six of this species.

Like all *Cinclus* eggs, they are a pure white, chalky rather than china-white, with a soft, smooth, though not glossy, surface rather like the eggs of some Barbets, but without the sheen of these eggs.

Fifty eggs average 25.9×18.5 mm.: maxima 27.1×18.9 and 26.3×19.5 mm.; minima $22.8 \times ?$ and $? \times 16.4$ mm. (these are Hume's measurements). Osmaston gives the average of his eight eggs as 26.1×18.8 mm.; these are now in my collection and are included in the above fifty.

Cinclus pallasii.

THE BROWN DIPPER.

(479) *Cinclus pallasii tenuirostris* Bonaparte.

THE INDIAN BROWN DIPPER.

Cinclus pallasii tenuirostris, Fauna B. I., Birds, 2nd ed. vol. ii, p. 4.

The breeding area of this Dipper ranges from Turkestan to the foot-hills of the Himalayas from Naini-Tal, Murree and Garhwal to the extreme East of Assam, North of the Brahmapootra, but not in the hills South of that river.

As regards elevations, Blanford recorded it in Summer and, therefore, presumably breeding, at 12,000 feet, and with less certainty at 14,000 feet in the Lachung Valley, Sikkim, but Stevens only records it up to 7,500 feet in that country and speaks of it as rare, "only a few scattered birds." In Ladakh Osmaston found a nest at 9,500 feet in the Dras River and Meinertzhagen says it is common at Dras itself, 10,500 feet, in April. In Kashmir it breeds *certainly* from 3,000 feet (Hume—"Mandi, below Drung") upwards, whilst in the Kuman Whymper took many nests between 4,000 and 5,000 feet and says that he never saw a nest at a higher elevation than the latter. Finally, Stevens took two nests and saw another in the foot-hills of North Lakhimpur only a few hundred feet above sea-level.

This Dipper frequents rivers generally of some size. Stevens says of Sikkim :—"This Dipper frequents every river of importance where it can procure sufficient sustenance, and only on occasions forsakes its accustomed haunts for the minor streams"; and again,

of North Lakhimpur he writes :—"In the cold season the limits of the fast-flowing water apparently restrict their range. The 'gagris,' or rapids, in the wild gorges are their favourite haunts."

Their time for breeding varies with the different elevations at which they breed. Hume says :—

"This Dipper lays at very different periods, according, perhaps, to season and elevation. I took a nest in an affluent of the Sutlej above Kotighur, at an elevation of something over 5,000 feet, in the first week of May. I took two nests in Mandi, below Drung, at an elevation of perhaps 3,000 feet, on the 27th April.

"Capt. Cock took two nests on the 12th and 20th March near Dhurrumsala, at an elevation of about 4,000 feet; but they lay earlier also, as Captain Hutton wrote to me that "on the 27th December we found a pair employed in preparing a nest at Rajpore. On the 18th January we again visited the nest and found three eggs."

In Assam they breed very early. Stevens records "Subansiri Gorge, second defile between Ganditola and Sifoo Mukh, 29.1.06. Two nests each containing five eggs placed in niches in the rock a few feet above the water, only accessible by boat; a third, too high up to reach on the precipitous face of the rocks." He also shot a fully-fledged young bird on the 26th February.

In Kuman Whympur found many nests between the 15th January and 15th February.

Nests taken by Hume at Mandi "were large balls of moss some seven inches in diameter, wedged into clefts of moss- and fern-covered rocks—the one, half under a little cascade, the other about a foot above the water's edge in the side of a rock standing in the midst of a broad deep stream. Each nest had a circular aperture in front, about 2.5 inches in diameter; the cavity was about 4 inches in diameter, lined with moss-roots in the one nest, and with these and a few dry leaves in the other. Each contained five eggs. Other nests I have seen were huge globular masses of interwoven moss, nearly a foot in diameter and fully 8 inches high, something like a gigantic Wren's nest, with a neatly worked circular aperture on one side and an internal cavity, about 4.5 inches in diameter and 3 inches high, lined with dry leaves and fern and moss-roots. I have never known more than five eggs in a nest."

Whympur says that he found most nests "domed and made of moss and dried grass, or of moss above, with an inner lining of fine grass, placed on rocks beside some pool of a swiftly flowing river, or mountain stream. Sometimes as much as six feet above the water but often only one or two feet above it. They seem to be generally artfully hidden under masses of fallen leaves, so that what would otherwise be a very conspicuous object looks merely like a mass of drifted leaves and rubbish.

"Other nests may be placed on rocks and islets in mid-stream but here, too, the fallen leaves are used to make the observer who sees the nest pass it by as the collections of a past flood. They

are early breeders; I have seen young by the end of January, but February is the month in which most eggs are laid."

The number of eggs laid is generally five, often four only, whilst one nest taken by Whympere contained six eggs. These are similar to other Dippers' eggs.

Fifty eggs average 26.6×18.4 mm.: maxima 29.2×20.2 mm.; minima 24.4×18.1 and 25.1×17.2 mm.

(480) *Cinclus pallasii marila* Swinhoe.

THE FORMOSAN BROWN DIPPER.

Cinclus pallasii marila, Fauna B. I., Birds, 2nd ed. vol. ii, p. 5.

The distribution of this Dipper has not yet been thoroughly worked out and we have great variations in the size of birds breeding in the same area. Swinhoe described the bird from Formosa, and it seems to work from these islands through China and, doubtless, the Indo-Chinese countries, into Assam South of the Brahmapootra River.

In the Khasia and Cachar Hills the regular breeding season is December and January, but it was a very long time before I found this out. In North Cachar I took two nests, one on the 25th April, 1893, and one on the 14th May, 1894, both at an elevation of about 3,500 feet. The bird was not rare, though one heard its shrill call more often than one saw the dark form scudding up and down the narrow hill-streams. However closely I watched, I could find no nests other than the above two. Then in the Khasia Hills one was again taken still later on the 6th July, 1907, but this time I had a Khasia with me who expressed surprise at finding the nest and, when I asked why, explained to me that the Dipper always bred in December and January.

After I had learned this we were more successful and I either found or had found for me, and marked down, several nests, all in the two months mentioned.

So far as I know it keeps very much to the smaller streams, waterfalls and cascades in forest, where it is even harder to watch on to its nest than on more open streams. It flies very close to the water, often dives and reappears where one least expects it, and has a special aptitude for disappearing when one is beginning to think it has been shadowed to its nest.

The nest is quite typical of the whole genus—a ball of grass, weeds, dead leaves and moss, either green or dried, lined with dead leaves over which is generally a further lining of grass. Some nests are placed on obstacles in mid-stream, in among, or on, the rubbish collected by successive floods. Here it would be impossible to recognize them as nests but for the flight of the parent bird from them when disturbed, for they are exactly like the rubbish all round

them and sometimes, indeed, over them. Other nests are wedged in between boulders, or into crevices in a rock-face. One was built in a hollow from which a stone had fallen, but even this was inconspicuous, the moss of which it was made blending with that which grew all round it.

In measurements the nests may be anything from 8 to 14 inches across and anything from 6 to 9 inches high, depending on the amount of loose leaves and rubbish used on the outside. In shape they are like large Rugby footballs lying on their sides, slightly deflated. The egg-chamber is small in comparison with the size and bulk of the nest, being about 4 inches or less either way; it is very compact and keeps dry and snug even when the outside of the nest is kept constantly wet with spray.

The eggs number four or five and do not differ from those of other Dippers.

Thirty eggs average 26.7×18.9 mm.: maxima 29.6×19.2 and 27.0×20.0 mm.; minima 24.3×18.3 and 26.0×17.7 mm.

ALPHABETICAL INDEX.

- Acanthoptila nipalensis*, 165.
Actinodura egertoni, 281.
 — *egertoni egertoni*, 281.
 — *egertoni khasiana*, 283.
 — *egertoni ripponi*, 285.
Ægithaliscus concinnus, 72.
 — *concinnus iredalei*, 72.
 — *concinnus manipurensis*, 74.
 — *concinnus talifuensis*, 75.
 — *leucogenys*, 75.
 — *naveogularis*, 76.
Ægithina nigrolutea, 321.
 — *tiphia*, 316.
 — *tiphia humei*, 320.
 — *tiphia multicolor*, 319.
 — *tiphia tiphia*, 316.
 — *tiphia zeylonica*, 319.
 — *viridissima*, 320.
 — *viridissima viridissima*, 320.
æmodium (*Conostoma*), 78.
ænobarbus intermedius (*Pteruthius*), 312.
 — *melanotis* (*Pteruthius*), 311.
 — (*Pteruthius*), 311.
Aethorhynchus lafresnayi, 315.
 — *lafresnayi innotata*, 315.
affine affine (*Trochalopteron*), 132.
 — (*Trochalopteron*), 132.
Afghan Grey Tit, 60.
albiventris albiventris (*Pnoepyga*), 428.
 — *pallidior* (*Pnoepyga*), 429.
 — (*Pnoepyga*), 428.
albogularis abuensis (*Dumetia*), 193.
 — *albogularis* (*Dumetia*), 192.
 — (*Dumetia*), 192.
 — (*Garrulax*), 117.
 — *whistleri* (*Garrulax*), 117.
Alcippe nipalensis, 240.
 — *nipalensis fratercula*, 243.
 — *nipalensis nipalensis*, 240.
 — *poioicephala*, 244.
 — *poioicephala brucei*, 246.
 — *poioicephala davisoni*, 248.
 — *poioicephala haringtoniæ*, 250.
Alcippe poioicephala karenii, 250.
 — *poioicephala magnirostris*, 250.
 — *poioicephala phayrei*, 247.
 — *poioicephala poioicephala*, 244.
Alcureus striatus, 351.
altirostris altirostris (*Pyctorhis*), 199.
 — (*Chrysomma*), 199.
 — *griseigularis* (*Chrysomma*), 200.
 — *griseigularis* (*Pyctorhis*), 200.
ampelinus (*Hypocolius*), 331.
Andaman Tree-Pie, 43.
Anderson's Olive-brown Suthora, 83.
annectans annectans (*Leioptila*), 277.
 — (*Leioptila*), 277.
 — *saturata* (*Leioptila*), 279.
argentauris (*Mesia*), 329.
Argya caudata, 159.
 — *caudata caudata*, 159, 161.
 — *caudata eclipes*, 161.
 — *earlii*, 158.
 — *gularis*, 162.
 — *longirostris*, 164.
 — *malcolmi*, 162.
 — *subrufa*, 163.
Arrakan Heavy-billed Scimitar-Babbler, 185.
 — *Olive Bulbul*, 387.
 — *Quaker-Babbler*, 247.
 — *Stripe-throated Bulbul*, 393.
 — *Yellow-winged Bulbul*, 367.
Ashy Laughing-Thrush, 119.
 — *Laughing-Thrush*, Assam, 119.
Asiatic Dipper, Kashmir, or White-breasted, 436.
Assam Ashy Laughing-Thrush, 119.
 — *Beautiful Sibia*, 280.
 — *Black Bulbul*, 340.
 — *Black-throated Babbler*, 226.
 — *Finch-billed Bulbul*, 382.
 — *Long-tailed Wren*, 422.
 — *Orange Suthora*, 81.
 — *Plain Brown Babbler*, 208.
 — *Red-fronted Babbler*, 233.

- Assam Red-headed Babbler, 230.
 — Red-headed Parrot-Bill, 86.
 — Red-throated Tit-Babbler, 259.
 — Rufous-chinned Laughing-Thrush, 120.
 — Rusty-cheeked Scimitar-Babbler, 183.
 — Short-tailed Wren-Babbler, 215.
 — Short-tailed Wren-Babbler, Northern, 218.
 — Spotted Babbler, 204.
 — Striated Laughing-Thrush, 146.
 — Stripe-fronted Babbler, 214.
 — Tit-Babbler, 257.
 — Yellow-billed Yellow-eyed Babbler, 200.
 — Yellow-breasted Babbler, 237.
atriceps atriceps (Rhopocichla), 252.
 — *bourdilloni* (Rhopocichla), 253.
 — (*Brachypodius*), 405.
 — major (*Brachypodius*), 405.
 — major (*Microtarsus*), 405.
 — *nigrifrons* (Rhopocichla), 254.
 — (Rhopocichla), 252.
aurifrons aurifrons (Chloropsis), 323.
 — (Chloropsis), 323.
 — *dauidsoni* (Chloropsis), 325.
aurigaster (Pycnonotus), 390.
 — *xanthorrhous* (Pycnonotus), 390.
austeni austeni (Ianthocincla), 122.
 — (Ianthocincla), 122.
 Austen's Parrot-Bill, 80.
- Babax, Giant Tibet, 151.
 — *lanceolatus*, 149.
 — *lanceolatus lanceolatus*, 149.
 — *lanceolatus victoriæ*, 150.
 — *lanceolatus woodi*, 150.
 —, Mount Victoria Small, 150.
 —, Small, 149.
 —, Small Chinese, 149.
 — *waddelli*, 151.
 Babbler, Arrakan Heavy-billed Scimitar-, 185.
 —, Arrakan Quaker-, 247.
 —, Assam Black-throated, 226.
 —, Assam Plain Brown, 208.
 —, Assam Red-fronted, 233.
 —, Assam Red-headed, 230.
 —, Assam Red-throated Tit-, 259.
 —, Assam Rusty-cheeked Scimitar-, 183.
 —, Assam Short-tailed Wren-, 215.
 —, Assam Spotted, 204.
 —, Assam Stripe-fronted, 214.
 —, Assam Tit-, 257.
- Babbler, Assam Yellow-billed Yellow-eyed, 200.
 —, Assam Yellow-breasted, 237.
 —, Baluchistan, 161.
 —, Bengal Jungle-, 152.
 —, Bengal Red-capped, 188.
 —, Bhamo Red-headed, 232.
 —, Bhutan Yellow-eyed, 198.
 —, Black-capped, 212.
 —, Black-fronted, 252.
 —, Black-throated, 225.
 —, Bombay, 156.
 —, Bombay Quaker-, 246.
 —, Brown-capped, 211.
 —, Brown-flanked Scimitar-, 172.
 —, Brown-headed Tree-, 222.
 —, Burmese Chestnut-throated Shrike-, 312.
 —, Burmese Golden-headed, 229.
 —, Burmese Red-capped, 189.
 —, Burmese Red-fronted, 232.
 —, Burmese Slaty-headed Scimitar-, 168.
 —, Burmese Spotted, 206.
 —, Burmese Stripe-fronted, 213.
 —, Cachar Rufous-necked Scimitar-, 178.
 —, Cachar Smaller Short-tailed Wren-, 217.
 —, Capped, 211.
 —, Ceylon, 135.
 —, Ceylon Black-fronted, 254.
 —, Ceylon Brown-flanked Scimitar-, 174.
 —, Ceylon Yellow-eyed, 199.
 —, Ceylonese Rufous, 157.
 —, Chestnut-headed Tit-, 263.
 —, Chestnut-throated Shrike-, 311.
 —, Chinese Yellow-eyed, 195.
 —, Common, 159.
 —, Coral-billed Scimitar-, 175.
 —, Deccan Brown-flanked Scimitar-, 172.
 —, Dusky-green Tit-, 261.
 —, Eastern Coral-billed Scimitar-, 176.
 —, Golden-crowned, 224.
 —, Golden-headed, 228.
 —, Green Shrike-, 313.
 —, Heavy-billed Scimitar-, 185.
 —, Himalayan Chestnut-throated Shrike-, 311.
 —, Himalayan Slaty-headed Scimitar-, 165.
 —, Indian Rusty-vented, 222.
 —, Jungle-, 152.
 —, Kalaw Rusty-cheeked Scimitar-, 185.
 —, Large Grey, 162.

- Babbler, Long-billed Scimitar-, 180.
 —, Long-billed Wren-, 220.
 —, Lower Burma Quaker-, 250.
 —, Malay Grey-throated, 227.
 —, Malay Red-winged, 236.
 —, Malay Yellow-breasted, 239.
 —, Malayan Spotted, 203.
 —, Manipur Long-billed Scimitar-, 180.
 —, Marsh Spotted, 207.
 —, Mount Abu Brown-flanked Scimitar-, 172.
 —, Mount Abu Small White-throated, 193.
 —, Naga Hills Long-billed Scimitar-, 181.
 —, Nepal Golden-headed, 228.
 —, Nepal Green Shrike-, 313.
 —, Nepal Rufous-necked Scimitar-, 178.
 —, Nepal White-eyed Quaker-, 240.
 —, Nilgiri Black-fronted, 252.
 —, Nilgiri Quaker-, 244.
 —, North-West Slaty-headed Scimitar-, 168.
 —, Northern Assam Short-tailed Wren-, 218.
 —, Plain Brown, 208.
 —, Plain-throated Wren-, 219.
 —, Quaker-, 244.
 —, Red-billed, 235.
 —, Red-Capped, 188.
 —, Red-fronted, 232.
 —, Red-headed, 230.
 —, Red-headed Tree-, 221.
 —, Red-throated Tit-, 259.
 —, Red-winged, 236.
 —, Red-winged Shrike-, 309.
 —, Rufous, 163.
 —, Rufous-bellied, 190.
 —, Rufous-necked Scimitar-, 178.
 —, Rusty-cheeked Scimitar-, 182.
 —, Rusty-vented, 222.
 —, Shan Plain Brown, 210.
 —, Shan States Scimitar-, 169.
 —, Shan States Short-tailed Wren-, 216.
 —, Shan States Small Wren-, 220.
 —, Shan States Tit-, 258.
 —, Shan States White-eyed Quaker-, 243.
 —, Shan States White-flanked Scimitar-, 171.
 —, Short-tailed Wren-, 215.
 —, Siam Yellow-breasted, 238.
 —, Sikkim Black-throated, 225.
 —, Sikkim Chestnut-headed Tit-, 263.
 Babbler, Sikkim Rusty-cheeked Scimitar-, 182.
 —, Sikkim Slender-billed Scimitar-, 187.
 —, Sikkim White-headed Shrike-, 194.
 —, Simla Green Shrike-, 314.
 —, Simla Rusty-cheeked Scimitar-, 182.
 —, Simla Spotted, 206.
 —, Sind Jungle-, 154.
 —, Slaty-headed Scimitar-, 165.
 —, Slender-billed, 164.
 —, Slender-billed Scimitar-, 187.
 —, Small White-throated, 192.
 —, Southern Brown-flanked Scimitar-, 173.
 —, Southern Jungle-, 153.
 —, Southern Small White-throated, 192.
 —, Southern Spotted, 201.
 —, Spiny, 165.
 —, Spotted, 201.
 —, Striated, 158.
 —, Surma Valley Slaty-headed Scimitar-, 166.
 —, Tenasserim Coral-billed Scimitar-, 177.
 —, Tenasserim Heavy-billed Scimitar-, 187.
 —, Tenasserim Plain-throated Wren-, 219.
 —, Tenasserim Quaker-, 248.
 —, Tenasserim Tit-, 255.
 —, Tenasserim White-flanked Scimitar-, 170.
 —, Tit-, 255.
 —, Travancore Black-fronted, 253.
 —, Travancore Spotted, 204.
 —, Tree-, 221.
 —, Upper Burma Quaker-, 250.
 —, Western Coral-billed Scimitar-, 175.
 —, Western Yellow-eyed, 198.
 —, White-eyed Quaker-, 240.
 —, White-flanked Scimitar-, 170.
 —, White-headed, 156.
 —, White-headed Shrike-, 194.
 —, White-throated, 162.
 —, Yellow-billed Yellow-eyed, 199.
 —, Yellow-breasted, 237.
 —, Yellow-eyed, 195.
 —, Yunnan Rusty-cheeked Scimitar-, 184.
 Baluchistan Babbler, 161.
 Banasore White-breasted Laughing-Thrush, 139.
 Bannu White-eared Bulbul, 367.
 Bar-wing, 281.

- Bar-wing, Chin Hills, 285.
 —, Hoary, 286.
 —, Nepal, 281.
 —, Nepal Hoary, 286.
 —, Shillong, 293.
 bayleyi (*Dendrocitta*), 43.
 Beautiful Nuthatch, 98.
 — *Sibia*, 280.
 — *Sibia*, Assam, 280.
 Bengal Jungle-Babbler, 152.
 — Red-Capped Babbler, 188.
 — Red-vented Bulbul, 361.
 — Red-whiskered Bulbul, 371.
 — Tree-Pie, 35.
 Bhamo Brown-chinned Yahina, 297.
 — Chestnut-naped *Ixulus*, 304.
 — Red-headed Babbler, 232.
 Bhutan Yellow-eyed Babbler, 198.
bispecularis bispecularis (*Garrulus*), 50.
 — (*Garrulus*), 50.
 — *haringtoni* (*Garrulus*), 52.
 — *persaturatus* (*Garrulus*), 52.
 Black-browed Suthora, 84.
 — Tree-Pie, 41.
 Black Bulbul, 338.
 — Bulbul, Assam, 340.
 — Bulbul, Burmese, 342.
 — Bulbul, Himalayan, 338.
 — Bulbul, Southern Indian, 343.
 Black-capped Babbler, 212.
 — Bulbul, 394.
 Black-chinned Yuhina, 298.
 — Yuhina, Nepal, 298.
 Black-crested Yellow Bulbul, 379.
 — Yellow Bulbul, Himalayan, 379.
 Black-crowned Jay, 47.
 — Jay, Burmese, 47.
 Black-faced Laughing-Thrush, 132.
 — Laughing-Thrush, Nepal, 132.
 Black-fronted Babbler, 252.
 — Babbler, Ceylon, 254.
 — Babbler, Nilgiri, 252.
 — Babbler, Travancore, 253.
 Black-gorgeted Laughing-Thrush, 112.
 — Laughing-Thrush, Burmese, 114.
 — Laughing-Thrush, Indian, 112.
 Black-headed Bulbul, 405.
 — Bulbul, Northern, 405.
 — *Sibia*, 271.
 — *Sibia*, Sikkim, 271.
 — *Sibia*, Simla, 272.
 — Yellow Bulbul, Malayan, 381.
 Black Racket-tailed Magpie, 43.
 Black-rumped Magpie, 24.
 Black-spotted Yellow-Tit, 69.
 — Yellow-Tit, Burmese, 70.
 — Yellow-Tit, Northern, 69.
 Black-throated Babbler, 225.
 — Babbler, Assam, 226.
 — Babbler, Sikkim, 225.
 — Jay, 46.
 — Laughing-Thrush, 103.
 — Laughing-Thrush, Burmese, 103.
 — Parrot-Bill, 79.
 Black-Tit, 66.
 —, Crested, 65.
 —, Sikkim, 67.
 —, Simla, 66.
 Black-winged *Sibia*, 276.
 — *Sibia*, Tenasserim, 276.
 — *Sibia*, Tounghoo, 277.
blanfordi blanfordi (*Pycnonotus*), 401.
 — (*Pycnonotus*), 401.
 — *robinsoni* (*Pycnonotus*), 402.
 Blue-bellied Bulbul, 397.
 — Bulbul, Malay, 397.
 Blue Magpie, Burmese Red-billed, 27.
 —, Indian Red-billed, 26.
 — Tit, 64.
 — Tit, Tianschan, 64.
 Blue-winged Chloropsis, 326.
 — Chloropsis, Burmese, 326.
 — Laughing-Thrush, 136.
 — Siva, 294.
 — Siva, Nepal, 294.
 Blyth's Orange Suthora, 81.
 Bombay Babbler, 156.
 — Quaker-Babbler, 246.
 — Spotted-Grey Creeper, 416.
 Baluchistan Streaked Laughing-Thrush, 144.
Brachypodius atriceps, 405.
 — *atriceps major*, 405.
 — *cinereoventris*, 407.
 — *poiocephalus*, 406.
brevicaudata (*Napothera*), 215.
 — *striata* (*Napothera*), 215.
 — *venningi* (*Napothera*), 216.
brevicaudatus striatus (*Turdinulus*), 215.
 — *venningi* (*Turdinulus*), 216.
 Brooks's Nuthatch, 95.
 Brown Babbler, Plain, 208.
 — Babbler, Shan Plain, 210.
 — Bulbul, Kachin Hills Yellow-vented, 390.
 — Bulbul, Yellow-vented, 390.
 Brown-capped Babbler, 211.
 — Laughing-Thrush, 122.
 — Laughing-Thrush, Cachar, 122.

- Brown-chinned Yuhina, 297.
 — Yuhina, Bhamo, 297.
 Brown Crested Tit, 68.
 — Dipper, 438.
 — Dipper, Formosan, 440.
 — Dipper, Indian, 438.
 Brown-eared Bulbul, 346.
 — Bulbul, Himalayan, 346.
 — Bulbul, Kachin Hills, 348.
 — Olive Bulbul, 403.
 Brown-flanked Scimitar-Babbler, 172.
 — Scimitar-Babbler, Ceylon, 174.
 — Scimitar-Babbler, Deccan, 172.
 — Scimitar-Babbler, Mount Abu, 172.
 — Scimitar-Babbler, Southern, 173.
 Brown-headed Staphida, 289.
 — Tree-Babbler, 222.
 Brown-necked Raven, 5.
 Brown-throated Tree-Creeper, 415.
 — Tree-Creeper, Manipur, 415.
 Brown White-throated Bulbul, 333.
 — White-throated Bulbul, Malayan, 333.
 — Wren, 430.
 — Wren, Plain, 421.
 brunneus brunneus (Pycnonotus), 403.
 — (Pycnonotus), 403.
 Bulbul, Arrakan Olive, 387.
 —, Arrakan Stripe-throated, 393.
 —, Arrakan Yellow-winged, 367.
 —, Assam Black, 340.
 —, Assam Finch-billed, 382.
 —, Bannu White-eared, 367.
 —, Bengal Red-vented, 361.
 —, Bengal Red-whiskered, 371.
 —, Black, 338.
 —, Black-capped, 394.
 —, Black-headed, 405.
 —, Blue-bellied, 397.
 —, Brown-eared, 346.
 —, Brown-eared Olive, 403.
 —, Brown White-throated, 333.
 —, Burmese Black, 342.
 —, Burmese Red-vented, 357.
 —, Burmese Red-whiskered, 378.
 —, Burmese White-headed, 344.
 —, Burmese Yellow White-throated, 337.
 —, Central Indian Red-vented, 355.
 —, Ceylon Red-vented, 353.
 —, Chinese Red-vented, 360.
 —, Finch-billed, 382.
 —, Grey-bellied, 407.
 —, Grey-headed, 406.
 —, Himalayan Black, 338.
 Bulbul, Himalayan Black-crested Yellow, 379.
 —, Himalayan Brown-eared, 346.
 —, Himalayan White-cheeked, 364.
 —, Indian Yellow White-throated, 334.
 —, Kachin Hills Brown-eared, 348.
 —, Kachin Hills Yellow-vented Brown, 390.
 —, Kunan Red-whiskered, 373.
 —, Large Olive, 400.
 —, Madras Red-vented, 374.
 —, Malaccan Streaked, 385.
 —, Malaccan Stripe-throated, 391.
 —, Malay Blue-bellied, 397.
 —, Malay Small Olive, 404.
 —, Malayan Black-headed Yellow, 381.
 —, Malayan Brown White-throated, 333.
 —, Malayan Yellow-vented Olive, 389.
 —, Mount Abu Red-whiskered, 377.
 —, Muleyit Yellow-winged, 370.
 —, Northern Black-headed, 405.
 —, Olive, 387.
 —, Pegu Olive, 401.
 —, Pegu White-throated, 338.
 —, Plains White-cheeked, 365.
 —, Punjab Red-vented, 363.
 —, Red-vented, 353.
 —, Ruby-throated, 396.
 —, Siam Olive, 402.
 —, Singapore Large Olive, 400.
 —, Small Olive, 404.
 —, Southern Indian Black, 343.
 —, Streaked, 385.
 —, Striated Green, 351.
 —, Stripe-throated, 391.
 —, Tenasserim Red-vented, 359.
 —, White-browed, 398.
 —, White-cheeked, 364.
 —, Yellow-browed, 386.
 —, Yellow-crowned, 384.
 —, Yellow-eared, 408.
 —, Yellow-throated, 395.
 —, Yellow-vented Brown, 390.
 —, Yellow-vented Olive, 389.
 —, Yellow White-throated, 334.
 —, Yellow-winged, 367.
 Burma Quaker-Babbler, Lower, 250.
 — Quaker-Babbler, Upper, 250.
 Burmese Black Bulbul, 342.
 — Black-crowned Jay, 47.
 — Black-gorgeted Laughing-Thrush, 114.
 — Black-spotted Yellow-Tit, 70.

- Burmese Black-throated Laughing-Thrush, 103.
 — Blue-winged Chloropsis, 326.
 — Chestnut-throated Shrike-Babbler, 312.
 — Crimson-winged Laughing-Thrush, 130.
 — Golden-headed Babbler, 229.
 — Great Tit, 62.
 — Grey-headed Parrot-Bill, 88.
 — Hill Tree-Pie, 40.
 — House-Crow, 19.
 — Jungle-Crow, 11.
 — Necklaced Laughing-Thrush, 115.
 — Nuthatch, 93.
 — Red-billed Blue Magpie, 27.
 — Red-capped, 189.
 — Red-fronted Babbler, 232.
 — Red-tailed Laughing-Thrush, 131.
 — Red-vented Bulbul, 357.
 — Red-whiskered Bulbul, 378.
 — Slaty-headed Scimitar-Babbler, 168.
 — Spotted Babbler, 206.
 — Stripe-fronted Babbler, 213.
 — Stripe-throated Siva, 294.
 — White-crested Laughing-Thrush, 110.
 — White-headed Bulbul, 344.
 — Yellow White-throated Bulbul, 337.

 Cachar Brown-capped Laughing-Thrush, 122.
 — Crimson-winged Laughing-Thrush, 129.
 — Rufous-necked Scimitar-Babbler, 178.
 — Smaller Short-tailed Wren-Babbler, 217.
 — Wedge-billed Wren, 432.
 — Yellow-breasted Laughing-Thrush, 116.
 cachinans cachinans (Trochalopteron), 137.
 — (Trochalopteron), 137.
 cærulatus cærulatus (Dryonastes), 103.
 — (Dryonastes), 103.
 — kaurensis (Dryonastes), 105.
 — subcærulatus (Dryonastes), 104.
 cafer bengalensis (Molpastes), 361.
 — burmanicus (Molpastes), 357.
 — cafer (Molpastes), 353.
 — chrysorrhoides (Molpastes), 360.
 — intermedius (Molpastes), 363.
 cafer (Molpastes), 353.
 — nigripileus (Molpastes), 359.
 — pallidus (Molpastes), 355.
 canifrons canifrons (Spizixus), 382.
 — (Spizixus), 382.
 capistrata capistrata (Leioptila), 271.
 — (Leioptila), 271.
 — pallida (Leioptila), 272.
 Capped Babbler, 211.
 Carrion-Crow, 5.
 —, Eastern, 5.
 Caryocatactes hemispila (Nucifraga), 53.
 — (Nucifraga), 53.
 castanea almoræ (Sitta), 92.
 — castanea (Sitta), 90.
 — cinnamoventris (Sitta), 91.
 — neglecta (Sitta), 93.
 — (Sitta), 90.
 castaneiceps brunneicauda (Pseudominla), 264.
 — castaneiceps (Pseudominla), 263.
 — (Pseudominla), 263.
 — (Staphida), 287.
 Castaneiventris almoræ (Sitta), 92.
 — castaneiventris (Sitta), 90.
 — cinnamoventris (Sitta), 91.
 — neglecta (Sitta), 93.
 castaneocoronata castaneocoronata (Tesia), 434.
 — (Tesia), 434.
 caudata (Argya), 159.
 — caudata (Argya), 159, 161.
 — eclipes (Argya), 161.
 — (Spelæornis), 427.
 Central Indian Iora, 320.
 — Indian Red-vented Bulbul, 355.
 Cerasophila thompsoni, 344.
 Certhia discolor, 415.
 — discolor manipurensis, 415.
 — familiaris, 413.
 — familiaris hodgsoni, 414.
 — familiaris nipalensis, 413.
 — himalayana, 410.
 — himalayana himalayana, 410.
 — himalayana limes, 412.
 — himalayana taniura, 412.
 Certhiidae, 410.
 Ceylon Babbler, 155.
 — Black-fronted Babbler, 254.
 — Brown-flanked Scimitar-Babbler, 174.
 — House-Crow, 20.
 — Iora, 319.
 — Magpie, 32.
 — Red-vented Bulbul, 353.
 — Yellow-eyed Babbler, 199.

- Ceylonese Rufous Babbler, 157.
 Chestnut-backed Laughing-Thrush, 102.
 Chestnut-bellied Nuthatch, 90.
 Chestnut-headed Ixulus, 300.
 — Staphida, 287.
 — Tit-Babbler, 263.
 — Tit-Babbler, Shillong, 264.
 — Tit-Babbler, Sikkim, 263.
 — Wren, 434.
 Chestnut-naped Ixulus, Bharno, 304.
 Chestnut-rumped Sibia, 277.
 — Sibia, Shan, 279.
 — Sibia, Sikkim, 277.
 Chestnut-throated Shrike-Babbler, 311.
 — Shrike-Babbler, Burmese, 312.
 — Shrike-Babbler, Himalayan, 311.
 Chin Hills Bar-wing, 285.
 — Hills Long-tailed Wren, 426.
 — Hills Red-crowned Jay, Rippon's, 52.
 — Hills Red-headed Laughing-Thrush, 124.
 — Hills Tree-Pie, 36.
 — Hills White-browed Fulvetta, 268.
 chinensis chinensis (Cissa), 30.
 — (Cissa), 30.
 — (Dryonastes), 103.
 — leucogenys (Dryonastes), 103.
 — propinquus (Dryonastes), 103.
 Chinese Magpie, 23.
 — Red-billed Magpie, 25.
 — Red-vented Bulbul, 360.
 — Small Babax, 149.
 — Yellow-eyed Babbler, 195.
 Chloropsis aurifrons, 323.
 — aurifrons aurifrons, 323.
 — aurifrons davidsoni, 325.
 —, Blue-winged, 326.
 —, Burmese Blue-winged, 326.
 — cochinchinensis, 326.
 — cochinchinensis cochinchinensis, 326.
 —, Gold-fronted, 323.
 — hardwickii, 325.
 — hardwickii hardwickii, 325.
 — icterocephala chlorocephala, 326.
 —, Indian Gold-fronted, 323.
 —, Indian Orange-bellied, 325.
 —, jerdoni, 327.
 —, Malabar, 325.
 —, Malabar Green-winged, 327.
 —, Orange-bellied, 325.
 Chough, Eastern Red-billed, 55.
 —, Hume's Ground-, 57.
 —, Red-billed, 55.
 —, Yellow-billed, 56.
 chrysæa assimilis (Stachyria), 229.
 — chrysæa (Stachyria), 228.
 — (Stachyria), 228.
 Chrysomma altostris, 199.
 — altostris griseigularis, 200.
 — sinensis, 195.
 — sinensis hypoleucus, 198.
 — sinensis nasalis, 199.
 — sinensis saturator, 198.
 — sinensis sinensis, 195.
 chrysotis chrysotis (Lioparus), 269.
 — (Lioparus), 269.
 Cinclidæ, 436.
 cinclus cashmeriensis (Cinclus), 436.
 Cinclus cinclus, 436.
 — cinclus cashmeriensis, 436.
 — pallasii, 438.
 — pallasii marila, 440.
 — pallasii tenuirostris, 438.
 cineracea cineracea (Lanthocincla), 119.
 — (Lanthocincla), 119.
 — (Pseudominla), 261.
 cinereoventris (Brachypodius), 407.
 — (Microtarsus), 407.
 Cinnamom-bellied Nuthatch, 91.
 — Nuthatch, Western, 92.
 Cissa chinensis, 30.
 — chinensis chinensis, 30.
 — ornata, 32.
 cochinchinensis (Chloropsis), 326.
 — cochinchinensis (Chloropsis), 326.
 Common Babbler, 159.
 — Dipper, 436.
 — Indian House-Crow, 15.
 — Iora, 316.
 — Tree-Creeper, 413.
 — Tree-Creeper, Nepal, 413.
 — Tree-Creeper, North-West Indian, 414.
 concinnus (Ægithaliscus), 72.
 — iredalei (Ægithaliscus), 72.
 — manipurensis (Ægithaliscus), 74.
 — talifuensis (Ægithaliscus), 75.
 Conostoma æmodium, 78.
 Coral-billed Scimitar-Babbler, 175.
 — Scimitar-Babbler, Eastern, 176.
 — Scimitar-Babbler, Tenasserim, 177.
 — Scimitar-Babbler, Western, 175.
 corax (Corvus), 1.
 — laurencei (Corvus), 1.
 — ruficollis (Corvus), 5.
 — tibetanus (Corvus), 4.
 cornix (Corvus), 15.
 — sharpii (Corvus), 15.
 corone (Corvus), 5.
 — orientalis (Corvus), 5.

- coronoides andamanensis (Corvus), 11.
 — culminatus (Corvus), 9.
 — intermedius (Corvus), 10.
 — levaillanti (Corvus), 7.
 Corvidæ, 1.
 Corvus corax, 1.
 — corax laurencei, 1.
 — corax ruficollis, 5.
 — corax tibetanus, 4.
 — cornix, 15.
 — cornix sharpii, 15.
 — corone, 5.
 — corone orientalis, 5.
 — coronoides andamanensis, 11.
 — coronoides culminatus, 9.
 — coronoides intermedius, 10.
 — coronoides levaillanti, 7.
 — frugilegus, 14.
 — frugilegus tschusii, 14.
 — levaillanti, 7.
 — levaillanti andamanensis, 11.
 — levaillanti culminatus, 9.
 — levaillanti intermedius, 10.
 — levaillanti levaillanti, 7.
 — macrorhynchus macrorhynchus, 12.
 — monedula, 20.
 — monedula sommeringii, 20.
 — splendens, 15.
 — splendens insolens, 19.
 — splendens protegatus, 20.
 — splendens splendens, 15.
 — splendens zugmayeri, 18.
 Creeper, Bombay Spotted-Grey, 416.
 —, Common Tree-, 413.
 —, Nepal Common Tree-, 413.
 —, Spotted-Grey, 416.
 —, Wall-, 417.
 Crested Black-Tit, 65.
 — Tit, Brown, 68.
 Crimson-winged Laughing-Thrush, 128.
 — Laughing-Thrush, Burmese, 130.
 — Laughing-Thrush, Cachar, 129.
 — Laughing-Thrush, Nepal, 128.
 Criniger, 333.
 — gularis, 334.
 — gularis burmanicus, 337.
 — gularis flaveolus, 334.
 — gularis griseiceps, 338.
 — gutturalis, 333.
 — gutturalis ochraceus, 333.
 — tephrogenys burmanicus, 337.
 — tephrogenys flaveolus, 334.
 — tephrogenys griseiceps, 338.
 — tephrogenys tephrogenys, 333.
 Crow, Burmese House-, 19.
 —, Burmese Jungle-, 11.
 —, Carrion-, 5.
 —, Ceylon House-, 20.
 —, Common Indian House-, 15.
 —, Eastern Carrion-, 5.
 —, Eastern Hooded, 15.
 —, Himalayan Jungle-, 10.
 —, Hooded, 15.
 —, House-, 15.
 —, Jungle-, 7.
 —, Malayan Jungle-, 12.
 —, Northern Indian Jungle-, 7.
 —, Sind House-, 18.
 —, Southern Jungle-, 9.
 Crypsirhina cucullata, 44.
 — temia, 43.
 — varians, 43.
 cucullata (Crypsirhina), 44.
 cyaniventer cyaniventer (Tesia), 433.
 — (Tesia), 433.
 cyaniventris cyaniventris (Pycnonotus), 397.
 — (Pycnonotus), 397.
 Cyanoderma erythropteron, 236.
 — erythropteron erythropteron, 236.
 cyanuroptera (Siva), 294.
 cyanus (Parus), 64.
 — tianschanicus (Parus), 64.
 Deccan Brown-flanked Scimitar-Babbler, 172.
 delesserti (Garrulax), 111.
 Dendrocitta bayleyi, 43.
 — formosæ, 38.
 — formosæ assimilis, 40.
 — formosæ himalayensis, 38.
 — formosæ occidentalis, 40.
 — frontalis, 41.
 — leucogaster, 37.
 — rufa, 33.
 — rufa pallida, 35.
 — rufa rufa, 33.
 — rufa saturator, 36.
 — rufa sclateri, 36.
 — rufa vagabunda, 35.
 diademata ampelina (Yuhina), 297.
 — (Yuhina), 297.
 dichrous dichrous (Lophophanes), 68.
 Dipper, Brown, 438.
 —, Common, 436.
 —, Formosan Brown, 440.
 —, Indian Brown, 438.
 —, Kashmir or White-breasted Asiatic, 436.

- discolor* (*Certhia*), 415.
 — *manipurensis* (*Certhia*), 415.
Dryonastes cærulatus, 103.
 — *cærulatus cærulatus*, 103.
 — *cærulatus kaurensis*, 105.
 — *cærulatus subcærulatus*, 104.
 — *chinensis*, 103.
 — *chinensis leucogenys*, 103.
 — *chinensis propinquus*, 103.
 — *galbanus*, 107.
 — *nuchalis*, 102.
 — *ruficollis*, 100.
 — *sannio*, 106.
dubius dubius (*Schœniparus*), 255.
 — *genestieri* (*Schœniparus*), 258.
 — *mandellii* (*Schœniparus*), 257.
 — (*Schœniparus*), 255.
Dumetia albogularis, 192.
 — *albogularis abuensis*, 193.
 — *albogularis albogularis*, 192.
 — *hyperythra*, 190.
Dusky Green Tit-Babbler, 261.

earlii (*Argya*), 158).
Eastern Carrion-Crow, 5.
 — *Coral-billed Scimitar-Babbler*, 176.
 — *Green-backed Tit*, 63.
 — *Himalayan Tree-Pie*, 38.
 — *Himalayan White-crested Laughing-Thrush*, 109.
 — *Hooded Crow*, 15.
 — *Jackdaw*, 20.
 — *Variegated Laughing-Thrush*, 133.
 — *Red-billed Chough*, 55.
 — *Rook*, 14.
egertoni (*Actinodura*), 281.
 — *egertoni* (*Actinodura*), 281.
 — *khasiana* (*Actinodura*), 283.
 — *ripponi* (*Actinodura*), 285.
Elachura haplonota, 421.
Elathea jocos a emeria, 371.
emeria emer ia (*Otocompsa*), 371.
 — *fascicaudata* (*Otocompsa*), 374.
 — *peguensis* (*Otocompsis*), 378.
epilepidota bakeri (*Napothera*), 220.
 — *davisoni* (*Napothera*), 219.
 — (*Napothera*), 219.
epilepidotus bakeri (*Turdinulus*), 220.
 — *davisoni* (*Turdinulus*), 219.
Erpornis xantholeuca, 305.
 — *xantholeuca xantholeuca*, 305.
erythrocephalum chrysop-terum (*Trochalopteron*), 126.
 — *erythrocephalum* (*Trochalopteron*), 123.

erythrocephalum erythro-lemma (*Trochalopteron*), 124.
 — *melanostigma* (*Trochalopteron*), 127.
 — *nigrimentum* (*Trochalopteron*), 125.
 — (*Trochalopteron*), 123.
erythrogenys erythrogenys (*Pomatorhinus*), 182.
 — *gravivox* (*Pomatorhinus*), 184.
 — *haringtoni* (*Pomatorhinus*), 72.
 — *imberbis* (*Pomatorhinus*), 185.
 — *maclellandi* (*Pomatorhinus*), 183.
 — (*Pomatorhinus*), 182.
erythropteron (*Cyanoderma*), 236.
 — *erythropteron* (*Cyanoderma*), 236.
erythropterus (*Pteruthius*), 309.
erythrophthalmus erythrophthalmus (*Pycnonotus*), 404.
 — (*Pycnonotus*), 404.
erythrorhyncha erythrorhyncha (*Urocissa*), 25.
 — *magnirostris* (*Urocissa*), 27.
 — *occipitalis* (*Urocissa*), 26.
 — (*Urocissa*), 25.
europæa nagaensis (*Sitta*), 94.
 — (*Sitta*), 94.

familiaris (*Certhia*), 413.
 — *hodgsoni* (*Certhia*), 414.
 — *nipalensis* (*Certhia*), 413.
feruginosus albogularis (*Pomatorhinus*), 177.
 — *ferruginosus* (*Pomatorhinus*), 175.
 — *phayrei* (*Pomatorhinus*), 176.
 — (*Pomatorhinus*), 175.
Finch-billed Bulbul, 382.
 — *Bulbul*, Assam, 382.
finlaysoni davisoni (*Pycnonotus*), 393.
 — *finlaysoni* (*Pycnonotus*), 291.
 — (*Pycnonotus*), 391.
Fire-tailed Myzornis, 322.
flavala flavala (*Hemixus*), 346.
 — *flavala* (*Ixos*), 346.
 — *hildebrandi* (*Hemixus*), 348.
 — *hildebrandi* (*Ixos*), 348.
 — (*Ixos*), 346.
flavescens flavescens (*Xanthixus*), 367.
 — *vividus* (*Xanthixus*), 370.
 — (*Xanthixus*), 367.
flavicollis baileyi (*Ixulus*), 303.
 — *harterti* (*Ixulus*), 304.
 — (*Ixulus*), 302.

- flavirostris cucullata* (Urocissa), 29.
 — *flavirostris* (Urocissa), 28.
 — (Paradoxornis), 79.
 — (Urocissa), 28.
flaviventris flaviventris (Otocompsa), 379.
 — *minor* (Otocompsa), 381.
 — (Otocompsa), 379.
formosa (Sitta), 98.
formosæ assimilis (Dendrocitta), 40.
 — (Dendrocitta), 38.
 — *himalayensis* (Dendrocitta), 38.
 — *occidentalis* (Dendrocitta), 40.
Formosan Brown Dipper, 440.
frontalis (Dendrocitta), 41.
 — *frontalis* (Sitta), 99.
 — (Sitta), 99.
frugilegus (Corvus), 14.
 — *tchusii* (Corvus), 14.
Fulvetta, Chin Hills White-browed, 268.
 —, Golden-breasted, 269.
 —, Himalayan Golden-breasted, 269.
 —, Nepal White-browed, 266.
 —, Simla White-browed, 267.
 — *vinipecta*, 266.
 — *vinipecta kangræ*, 267.
 — *vinipecta ripponi*, 268.
 — *vinipecta vinipecta*, 266.
 —, White-browed, 266.
fuscocapillum fuscocapillum (Pellorneum), 211.
 — (Pellorneum), 211.

galbanus (Dryonastes), 107.
Gampsorhynchus rufulus, 194.
 — *rufulus rufulus*, 194.
Garrulax albogularis, 117.
 — *albogularis whistleri*, 117.
 — *delesserti*, 111.
 — *gularis*, 116.
 — *gularis gularis*, 116.
 — *leucolophus*, 108.
 — *leucolophus belangeri*, 110.
 — *leucolophus diardi*, 111.
 — *leucolophus hardwickii*, 109.
 — *leucolophus leucolophus*, 108, 109.
 — *pectoralis pectoralis*, 112.
 — *pectoralis semitorquata*, 114.
 — *moniligera*, 114.
 — *moniligera fuscata*, 115.
 — *moniligera moniligera*, 114.
 — *pectoralis*, 112.
 — *pectoralis meridionalis*, 114.

Garrulus bispecularis, 50.
 — *bispecularis bispecularis*, 50.
 — *bispecularis haringtoni*, 52.
 — *bispecularis persaturatus*, 52.
 — *lanceolatus*, 46.
 — *leucotis*, 47.
 — *leucotis leucotis*, 47.
 — *leucotis oatesi*, 49.
Giant Tibet Babax, 151.
Gilgit Streaked Laughing-Thrush, 144.
Glenargus leucopterus, 45.
goiavier analis (Pycnonotus), 389.
 — *personatus* (Pycnonotus), 389.
 — (Pycnonotus), 389.
Gold-fronted Chloropsis, 323.
 — *Chloropsis*, Indian, 323.
Golden-backed Iora, 321.
Golden-breasted Fulvetta, 269.
 — *Fulvetta*, Himalayan, 269.
Golden-crowned Babbler, 224.
Golden-headed Babbler, 228.
 — *Babbler*, Burmese, 229.
 — *Babbler*, Nepal, 228.
Gould's Parrot-Bill, 79.
gracilis (Leioptila), 274.
graculus (Pyrhocorax), 56.
Grammatoptila striata, 145.
 — *striata austeni*, 146.
 — *striata sikkimensis*, 146.
 — *striata striata*, 145.
Great Iora, 315.
 — *Iora*, Northern, 315.
 — *Parrot-Bill*, 78.
 — *Tit*, 58.
 — *Tit*, Burmese, 62.
 — *Tit*, Tibet, 61.
Green-backed Tit, 62.
 — *Tit*, Eastern, 63.
 — *Tit*, Simla, 62.
Green Bulbul, Striated, 351.
 — *Iora*, 320.
 — *Iora*, Malayan, 320.
 — *Magpie*, 30.
 — *Magpie*, Indian, 30.
 — *Shrike-Babbler*, 313.
 — *Shrike-Babbler*, Nepal, 313.
 — *Shrike-Babbler*, Simla, 314.
Green-winged Chloropsis, Malabar, 327.
Grey Babbler, Large, 162.
Grey-bellied Bulbul, 407.
Grey-headed Bulbul, 406.
 — *Parrot-Bill*, 87.
 — *Parrot-Bill*, Burmese, 88.
 — *Parrot-Bill*, Sikkim, 87.
Grey Hypocolius, 331.
Grey Sibia, 274.

- Grey-sided Laughing-Thrush, 103.
 — Laughing-Thrush, Kachin, 105.
 — Laughing-Thrush, Shillong, 104.
 — Laughing-Thrush, Sikkim, 103.
 Grey-throated Babbler, Malay, 227.
 Grey Tit, Afghan, 60.
 — Tit, Indian, 58.
 — Tit, Kashmir, 60.
 — Tit, Southern, 61.
 griseus griseus (Turdoides), 156.
 — striatus (Turdoides), 155.
 Ground-Chough, Hume's, 57.
 gularis (Argya), 162.
 — burmanicus (Criniger), 337.
 — (Criniger), 334.
 — flaveolus (Criniger), 334.
 — (Garrulax), 116.
 — griseiceps (Criniger), 338.
 — gularis (Garrulax), 116.
 — gularis (Psittiparus), 87.
 — gularis (Yuhina), 296.
 — minor (Mixornis), 238.
 — (Mixornis), 237.
 — pileata (Mixornis), 239.
 — (Psittiparus), 87.
 — (Pycnonotus), 396.
 — rubricapilla (Mixornis), 237.
 — transfluvialis (Psittiparus), 88.
 — (Yuhina), 296.
 guttaticollis (Paradoxornis), 80.
 gutturalis (Criniger), 333.
 — ochraceus (Criniger), 333.
 hæmorrhous bengalensis (Molpastes), 361.
 — burmanicus (Molpastes), 357.
 — chrysorrhoides (Molpastes), 360.
 — hæmorrhous (Molpastes), 353.
 — intermedius (Molpastes), 363.
 — nigripileus (Molpastes), 359.
 — pallidus (Molpastes), 355.
 haplonota (Elachura), 421.
 hardwickii (Chloropsis), 325.
 — hardwickii (Chloropsis), 325.
 Heavy-billed Scimitar-Babbler, 185.
 — Scimitar-Babbler, Arrakan, 185.
 — Scimitar-Babbler, Tenasserim, 187.
 Hemitarsus zeylonicus, 384.
 Hemixus flavala flavala, 346.
 — flavala hildebrandi, 348.
 Hemixus maclellandi maclellandi, 349.
 Herpornis, Nepal White-bellied, 305.
 —, White-bellied, 305.
 Heterophasa picaoides, 269.
 — picaoides picaoides, 269.
 Hill Tree-Pie, 38.
 Himalayan Black Bulbul, 338.
 — Black-crested Yellow Bulbul, 379.
 — Brown-eared Bulbul, 346.
 — Chestnut-throated Shrike-Babbler, 311.
 — Golden-breasted Fulvetta, 269.
 — Jungle-Crow, 10.
 — Nutcracker, 53.
 — Slaty-headed Scimitar-Babbler, 165.
 — Tree-Creeper, 410.
 — Tree-Creeper, Simla, 410.
 — Tree-Creeper, Western, 412.
 — Tree-Pie, Eastern, 38.
 — Tree-Pie, Western, 40.
 — White-cheeked Bulbul, 364.
 — White-cheeked Nuthatch, 97.
 himalayana (Certhia), 410.
 — himalayana (Certhia), 410.
 — limes (Certhia), 412.
 — taniura (Certhia), 412.
 himalayensis (Sitta), 89.
 Hoary Bar-wing, 286.
 — Bar-wing, Nepal, 286.
 Hooded Crow, 15.
 — Crow, Eastern, 15.
 — Racket-tailed Magpie, 44.
 Horizillas magna magna, 221.
 — magnirostre magnirostre, 222.
 horsfieldi horsfieldi (Pomatorhinus), 172.
 — melanurus (Pomatorhinus), 174.
 — obscurus (Pomatorhinus), 172.
 — (Pomatorhinus), 172.
 — travancoriensis (Pomatorhinus), 173.
 House-Crow, 15.
 —, Burmese, 19.
 —, Ceylon, 20.
 —, Common Indian, 15.
 —, Sind, 18.
 Hume's Ground-Chough, 57.
 — Red-headed Tit, 74.
 humilis (Podoces), 57.
 hyperythra (Dumetia), 190.
 Hypocolius ampelinus, 331.
 —, Grey, 331.
 hypoleucos hypoleucos (Pomatorhinus), 185.
 — (Pomatorhinus), 185.
 — tickelli (Pomatorhinus), 187.
 Ianthocinclia austeni, 122.
 — austeni austeni, 122.
 — cineracea, 119.
 — cineracea cineracea, 199.

- Ianthocinela ocellata*, 118.
 — *ocellata ocellata*, 118.
 — *rufogularis*, 120.
 — *rufogularis assamensis*, 120.
 — *rufogularis occidentalis*, 121.
 — *rufogularis rufogularis*, 120.
icterica (Iole), 386.
icterocephala chlorocephala
 (Chloropsis), 326.
ignotincta (Minla), 330.
ignotum cinnamomeum (Pellorneum), 210.
 — *ignotum* (Pellorneum), 208.
 — (*Pellorneum*), 208.
 Indian Black Bulbul, Southern, 343.
 — Black-gorgeted Laughing-Thrush, 112.
 — Brown Dipper, 438.
 — Common Tree-Creeper, North-West, 414.
 — Gold-fronted Chloropsis, 323.
 — Green Magpie, 30.
 — Grey Tit, 58.
 — House-Crow, Common, 15.
 — Iora, Central, 320.
 — Necklaced Laughing-Thrush, 114.
 — Orange-bellied Chloropsis, 325.
 — Red-billed Blue Magpie, 26.
 — Red-billed Leiothrix, 307.
 — Red-vented Bulbul, Central, 355.
 — Rusty-vented Babbler, 222.
 — Silver-eared Mesia, 329.
 — Sultan Tit, 77.
 — Tree-Pie, 33.
 — Yellow White-throated Bulbul, 334.
Iole icterica, 386.
 — *malaccensis*, 385.
 — *malaccensis malaccensis*, 385.
 — *olivacea virescens*, 387.
 — *virescens*, 387.
 — *virescens virescens*, 387.
Iora, 316.
 —, Central Indian, 320.
 —, Ceylon, 319.
 —, Common, 316.
 —, Golden-backed, 321.
 —, Great, 315.
 —, Green, 320.
 —, Malayan Green, 320.
 —, Northern Great, 315.
Ixops nipalensis nipalensis, 286.
Ixos flavala, 346.
 — *flavala flavala*, 346.
 — *flavala hildebrandi*, 348.
 — *mecllelandi mecllelandi*, 349.
Ixulus, Bhamo Chestnut-naped, 304.
 —, Chestnut-headed, 300.
 — *flavicollis*, 302.
 — *flavicollis baileyi*, 303.
 — *flavicollis flavicollis*, 302.
 — *flavicollis harterti*, 304.
 —, Mishmi Yellow-naped, 303.
 —, Nepal Yellow-naped, 302.
 — *occipitalis*, 300.
 —, Yellow-naped, 302.
 Jackdaw, 20.
 —, Eastern, 20.
 Jay, Black-crowned, 47.
 —, Black-throated, 46.
 —, Burmese Black-crowned, 47.
 —, Khasia Hills Red-crowned, 52.
 —, Red-crowned, 50.
 —, Sharpe's, 49.
 —, Streak-crowned, 49.
 —, White-winged, 45.
jerdoni (Chloropsis), 327.
 — *fairbanki* (Trochalopteron), 139.
 — *jerdoni* (Trochalopteron), 139.
 — *meridionale* (Trochalopteron), 140.
 — (*Trochalopteron*), 139.
 Jungle-Babbler, 152.
 —, Bengal, 152.
 —, Sind, 154.
 —, Southern, 153.
Jungle-Crow, 7.
 —, Burmese, 11.
 —, Himalayan, 10.
 —, Malayan, 12.
 —, Northern Indian, 7.
 —, Southern, 9.
jocosa abuensis (Otocompsa), 377.
 — *emeria* (Elathea), 371.
 — *emeria* (Otocompsa), 371.
 — *fuscicaudata* (Otocompsa), 374, 377.
 — *peguensis* (Otocompsa), 378.
 — *provincialis* (Otocompsa), 373.
 Kachin Grey-sided Laughing-Thrush, 105.
 — Hills Brown-eared Bulbul, 348.
 — Hills Yellow-vented Brown Bulbul, 390.
 Kalaw Rusty-cheeked Scimitar-Babbler, 185.
 Karenni Orange Suthora, 82.
 Kashmir Asiatic Dipper, 436.
 — Grey Tit, 60.
 — Nuthatch, 95.

- Kashmir Wren, 419.
kashmiriensis (Sitta), 95.
Kelaartia penicillata, 408.
 Khasia Hills Red-crowned Jay, 52.
 Kuman Red-whiskered Bulbul, 373.
 — Rufous-chinned Laughing-Thrush, 121.

lafresnayi (Aethorhynchus), 315.
 — *innonota* (Aethorhynchus), 315.
lanceolatus (Babax), 149.
 — (*Garrulus*), 46.
 — *lanceolatus* (Babax), 149.
 — *victoriae* (Babax), 150.
 — *woodi* (Babax), 150.
 Large Grey Babbler, 162.
 — Olive Bulbul, 400.
 — Olive Bulbul, Singapore, 400.
 Larger-spotted Nutcracker, 54.
 Laughing-Thrush, Ashy, 119.
 —, Assam Ashy, 119.
 —, Assam Rufous-chinned, 120.
 —, Assam Striated, 146.
 —, Baluchistan Streaked, 144.
 —, Banasore White-breasted, 139.
 —, Black-gorgeted, 112.
 —, Black-throated, 103.
 —, Blue-winged, 136.
 —, Brown-capped, 122.
 —, Burmese Black-gorgeted, 114.
 —, Burmese Black-throated, 103.
 —, Burmese Crimson-winged, 130.
 —, Burmese Necklaced, 115.
 —, Burmese Red-tailed, 131.
 —, Burmese White-crested, 110.
 —, Cachar Brown-capped, 122.
 —, Cachar Crimson-capped, 129.
 —, Cachar Yellow-breasted, 116.
 —, Chestnut-backed, 102.
 —, Chin Hills Red-headed, 124.
 —, Crimson-winged, 128.
 —, Eastern Himalayan White-crested, 109.
 —, Gilgit Streaked, 144.
 —, Grey-sided, 103.
 —, Indian Black-gorgeted, 112.
 —, Indian Necklaced, 114.
 —, Kachin Grey-sided, 105.
 —, Kuman Rufous-chinned, 14.
 —, Manipur Streaked, 141.
 —, Mynall White-breasted, 140.
 —, Necklaced, 114.
 —, Nepal Black-faced, 132.
 —, Nepal Crimson-winged, 128.
 —, Nepal Plain-coloured, 132.
 —, Nepalese Streaked, 142.
 —, Nilgiri Rufous-breasted, 137.
 —, Plain-coloured, 132.

 Laughing-Thrush, Red-headed, 123.
 —, Rufous-breasted, 137.
 —, Rufous-chinned, 120.
 —, Rufous-necked, 100.
 —, Shillong Grey-sided, 104.
 —, Shillong Yellow-winged, 126.
 —, Siamese White-crested, 111.
 —, Sikkim Grey-sided, 103.
 —, Sikkim Rufous-chinned, 120.
 —, Sikkim Striated, 146.
 —, Sikkim White-spotted, 118.
 —, Simla Red-headed, 123.
 —, Simla Streaked, 142.
 —, Simla Striated, 145.
 —, Spotted-breasted, 148.
 —, Streaked, 142.
 —, Striated, 145.
 —, Tenasserim Red-headed, 127.
 —, Travancore White-breasted, 139.
 —, Variegated, 133.
 —, Variegated Eastern, 133.
 —, Western Himalayan White-crested, 109.
 —, Western Variegated, 135.
 —, Western White-throated, 117.
 —, White-breasted, 139.
 —, White-browed, 106.
 —, White-headed, 108.
 —, White-spotted, 118.
 —, White-throated, 117.
 —, Wynaad, 111.
 —, Yellow-breasted, 116.
 —, Yellow-throated, 107.
Leioptila annectans, 277.
 — *annectans annectans*, 277.
 — *annectans saturata*, 279.
 — *capistrata*, 271.
 — *capistrata capistrata*, 271.
 — *capistrata pallida*, 272.
 — *gracilis*, 274.
 — *melanoleuca*, 276.
 — *melanoleuca melanoleuca*, 276.
 — *melanoleuca radcliffei*, 277.
 — *pulchella*, 280.
 — *pulchella pulchella*, 280.
Leiothrix, Indian Red-billed, 307.
 — *lutea*, 307.
 — *lutea callipyga*, 307.
 —, Red-billed, 307.
Leiotrichinae, 307.
leucogastra (*Dendrocitta*), 37.
leucogenys (*Ægithaliscus*), 75.
 — *humii* (*Molpastes*), 367.
 — *leucogenys* (*Molpastes*), 364.
 — *leucotis* (*Molpastes*), 365.
 — (*Molpastes*), 364.
leucolophus belangeri (*Garrulax*), 110.

- leucolophus diardi* (Garrulax), 111.
 — *hardwickii*, Garrulax, 109.
 — *leucolophus* (Garrulax), 108, 109.
leucopsis leucopsis (Sitta), 97.
 — (Sitta), 97.
leucopterus (Glenargus), 45.
 — (Platysmurus), 45.
leucotis (Garrulus), 47.
 — *leucotis* (Garrulus), 47.
 — *oatesi* (Garrulus), 49.
levaillanti andamanensis (Corvus), 11.
 — (Corvus), 7.
 — *culminatus* (Corvus), 9.
 — *intermedius* (Corvus), 10.
 — *levaillanti* (Corvus), 7.
lineatum gilgit (Trochalopteron), 144.
 — *grisescentior* (Trochalopteron), 142.
 — *lineatum* (Trochalopteron), 142.
 — (Trochalopteron), 142.
 — *ziaratis* (Trochalopteron), 144.
Lioparus chrysotis, 269.
 — *chrysotis chrysotis*, 269.
Long-billed Scimitar-Babbler, 180.
 — *Scimitar-Babbler*, Manipur, 180.
 — *Scimitar-Babbler*, Naga Hills, 181.
 — *Wren-Babbler*, 220.
Long-tailed Sibia, 269.
 — *Sibia*, Nepal, 269.
 — *Wren*, 422.
 — *Wren*, Assam, 422.
 — *Wren*, Chin Hills, 426.
 — *Wren*, Mekong, 425.
 — *Wren*, Sinlum, 424.
longicaudatus longicaudatus (Spelæornis), 422.
 — *oatesi* (Spelæornis), 426.
 — *reptatus* (Spelæornis), 425.
 — *sinlumensis* (Spelæornis), 424.
 — (Spelæornis), 422.
longirostris (Argya), 164.
Lophophanes dichrous dichrous, 68.
 — *melanolophus*, 65.
 — *rufonuchalis*, 66.
 — *rufonuchalis beavani*, 67.
 — *rufonuchalis rufonuchalis*, 66.
Lower Burma Quaker-Babbler, 250.
lutea callipyga (Leiothrix), 307.
 — (Leiothrix), 307.
luteolus (Pycnonotus), 398.

Machlolophus spilonotus, 69.
 — *spilonotus spilonotus*, 69.
 — *spilonotus subviridis*, 70.
 — *xanthogenys*, 71.

Machlolophus xanthogenys aplo-
notus, 71.
 — *xanthogenys xanthogenys*, 71.
macrorhynchus macrorhynchus
 (Corvus), 12.
Madras Red-vented Bulbul, 374.
magna magna (Horizillas), 221.
magnirostre magnirostre (Ophry-
 dornis), 222.
magnus magnus (Ophrydornis), 221.
 — (Ophrydornis), 221.
Magpie, 221.
 —, *Black Racket-tailed*, 43.
 —, *Black-rumped*, 24.
 —, *Burmese Red-billed Blue*, 27.
 —, *Ceylon*, 32.
 —, *Chinese*, 23.
 —, *Chinese Red-billed*, 25.
 —, *Green*, 30.
 —, *Hooded Racket-tailed*, 44.
 —, *Indian Green*, 30.
 —, *Indian Red-billed Blue*, 26.
 —, *Persian*, 22.
 —, *Red-billed*, 25.
 —, *Sikkim Yellow-billed*, 28.
 —, *Western Yellow-billed*, 29.
 —, *Yellow-billed*, 28.
major caschmiriensis (Parus), 60.
 — *cinereus* (Parus), 58.
 — *commixtus* (Parus), 62.
 — *intermedius* (Parus), 60.
 — *kaschmiriensis* (Parus), 60.
 — *mahrattarum* (Parus), 61.
 — (Parus), 58.
 — *tibetanus* (Parus), 61.
 — *ziaratis* (Parus), 60.
Malabar Chloropsis, 325.
 — *Green-winged Chloropsis*, 327.
Malaccan Streaked Bulbul, 385.
 — *Stripe-throated Bulbul*, 391.
malaccensis (Iole), 385.
 — *malaccensis* (Iole), 385.
Malacocincla sepiaria, 222.
 — *sepiaria abbotti*, 222.
malacoptilus (Rimator), 220.
Malay Blue-bellied Bulbul, 397.
 — *Grey-throated Babbler*, 227.
 — *Red-winged Babbler*, 236.
 — *Small Olive Bulbul*, 404.
 — *Yellow-breasted Babbler*, 239.
Malayan Black-headed Yellow
Bulbul, 381.
 — *Brown White-throated Bulbul*,
 333.
 — *Green Iora*, 320.
 — *Jungle-Crow*, 12.
 — *Spotted Babbler*, 203.
 — *Yellow-vented Olive Bulbul*,
 389.

- malcolmi (Argya), 162.
 Manipur Brown-throated Tree-Creeper, 415.
 — Long-billed Scimitar-Babbler, 180.
 — Red-headed Tit, 74.
 — Streaked Laughing-Thrush, 141.
 Marsh Spotted Babbler, 207.
 maclellandi maclellandi (Hemixus), 349.
 — maclellandi (Ixos), 349.
 Mekong Long-tailed Wren, 425.
 melanicterus (Pycnonotus), 394.
 melanocephala magnirostris (Urocissa), 27.
 — melanocephala (Urocissa), 25.
 — occipitalis (Urocissa), 26.
 melanocephalus melanocephalus (Microtarsus), 405.
 Melanochlora sultanea, 77.
 — sultanea sultanea, 77.
 melanoleuca (Leioptila), 276.
 — melanoleuca (Leioptila), 276.
 — radcliffei (Leioptila), 277.
 melanolophus (Lophophanes), 65.
 melanotis intermedius (Pteruthius), 312.
 — melanotis (Pteruthius), 311.
 merulina merulina (Stactocichla), 148.
 — (Stactocichla), 148.
 Mesia argentaurea, 329.
 — argentaurea argentaurea, 329.
 —, Indian Silver-eared, 329.
 —, Silver-eared, 329.
 Microscelis psaroides, 338.
 — psaroides concolor, 342.
 — psaroides ganeesa, 343.
 — psaroides nigrescens, 340.
 — psaroides psaroides, 338.
 Microtarsus atriceps major, 405.
 — cinereoventris, 407.
 — melanocephalus melanocephalus, 405.
 — poiocephalus, 406.
 milni sharpei (Trochalopecton), 131.
 Minla ignotincta, 330.
 —, Red-tailed, 330.
 Mishmi Yellow-naped Ixulus, 303.
 Mixornis gularis, 237.
 — gularis minor, 238.
 — gularis pileata, 239.
 — gularis rubricapilla, 237.
 — rubricapilla minor, 238.
 — rubricapilla pileata, 239.
 — rubricapilla rubricapilla, 237.
 Molpastes cafer, 353.
 — cafer bengalensis, 361.
 — cafer burmanicus, 357.
 Molpastes cafer cafer, 353.
 — cafer chrysorrhoides, 360.
 — cafer intermedius, 363.
 — cafer nigripileus, 359.
 — cafer pallidus, 355.
 — hæmorrhous bengalensis, 361.
 — hæmorrhous burmanicus, 357.
 — hæmorrhous chrysorrhoides, 360.
 — hæmorrhous hæmorrhous, 353.
 — hæmorrhous intermedius, 363.
 — hæmorrhous nigripileus, 359.
 — hæmorrhous pallidus, 355.
 — leucogenys, 364.
 — leucogenys humii, 367.
 — leucogenys leucogenys, 364.
 — leucogenys leucotis, 365.
 monedula (Corvus), 20.
 — sommeringii (Corvus), 20.
 moniligera fuscata (Garrulax), 115.
 — (Garrulax), 114.
 — moniligera (Garrulax), 114.
 monticolus lepcharum (Parus), 63.
 — monticolus (Parus), 62, 63.
 — (Parus), 62.
 Mount Abu Brown-flanked Scimitar-Babbler, 172.
 — Abu Red-whiskered Bulbul, 377.
 — Abu Small White-throated Babbler, 193.
 — Victoria Small Babax, 150.
 Muleyit Yellow-winged Bulbul, 370.
 multipunctata (Nucifraga), 54.
 Mynall White-breasted Laughing-Thrush, 140.
 Myzornis, Fire-tailed, 322.
 — pyrrhous, 322.
 Naga Hills Long-billed Scimitar-Babbler, 181.
 — Hills Nuthatch, 94.
 Napothera brevicaudata, 215.
 — brevicaudata striata, 215.
 — brevicaudata venningi, 216.
 — epilepidota, 219.
 — epilepidota bakeri, 220.
 — epilepidota davisoni, 219.
 — roberti guttaticollis, 217.
 — roberti roberti, 217.
 Necklaced Laughing-Thrush, 114.
 — Laughing-Thrush, Burmese, 115.
 — Laughing-Thrush, Indian, 114.
 Nepal Bar-wing, 281.
 — Black-chinned Yuhina, 298.
 — Black-faced Laughing-Thrush, 132.
 — Blue-winged Siva, 294.
 — Common Tree-Creeper, 413.

- Nepal Crimson-winged Laughing-Thrush, 128.
 — Golden-headed Babbler, 228.
 — Green Shrike-Babbler, 313.
 — Hoary Bar-wing, 286.
 — Long-tailed Sibia, 269.
 — Plain-coloured Laughing-Thrush, 132.
 — Rufous-necked Scimitar-Babbler, 178.
 — Scaly-breasted Wren, 428.
 — Slaty-bellied Wren, 433.
 — Stripe-throated Siva, 292.
 — Stripe-throated Yuhina, 296.
 — White-bellied Herpornis, 305.
 — White-browed Fulvetta, 266.
 — White-eyed Quaker-Babbler, 240.
 — Wren, 418.
 — Yellow-naped Ixulus, 302.
 Nepalese Streaked Laughing-Thrush, 142.
neumayer tephronota (Sitta), 96.
nigricapitatum (Pellorneum), 212.
nigricaps coltarti (Stachyris), 226.
 — *davisoni* (Stachyris), 227.
 — *nigricaps* (Stachyris), 225.
 — (Stachyris), 225.
nigrintum nigrintum (Yuhina), 298.
 — (Yuhina), 298.
nigrolutea (Ægithina), 321.
 Nilgiri Black-fronted Babbler, 252.
 — Quaker-Babbler, 244.
 — Rufous-breasted Laughing-Thrush, 137.
nipalensis (Acanthoptila), 165.
 — (Alcippe), 240.
 — *fratercula* (Alcippe), 243.
 — *nipalensis* (Alcippe), 240.
 — *nipalensis* (Ixops), 286.
 — *nipalensis* (Sibia), 286.
 — (Sibia), 286.
niveogularis (Ægithaliscus), 76.
 North-West Indian Common Tree-Creeper, 414.
 — Slaty-headed Scimitar-Babbler, 168.
 Northern Assam Short-tailed Wren-Babbler, 218.
 — Black-headed Bulbul, 405.
 — Black-spotted Yellow-Tit, 69.
 — Great Iora, 315.
 — Indian Jungle-Crow, 7.
 — Yellow-cheeked Tit, 71.
nuchalis (Dryonastes), 102.
 — (Pomatorhinus), 169.
Nucifraga caryocatactes, 53.
 — *caryocatactes hemispila*, 53.
Nucifraga multipunctata, 54.
 Nutcracker, 53.
 —, Himalayan, 53.
 —, Larger-spotted, 54.
 Nuthatch, 94.
 —, Beautiful, 98.
 —, Burmese, 93.
 —, Chestnut-bellied, 90.
 —, Cinnamon-bellied, 91.
 —, Himalayan White-cheeked, 97.
 —, Kashmir, or Brooks's, 95.
 —, Naga Hills, 94.
 —, Rock, 96.
 —, Turkestan Rock, 96.
 —, Velvet-fronted, 99.
 —, Western Cinnamon-bellied, 92.
 —, White-cheeked, 97.
 —, White-tailed, 89.
occipitalis (Ixulus), 300.
ocellata (Lanthocincla), 118.
 — *ocellata* (Lanthocincla), 118.
ochraceiceps austeni (Pomatorhinus), 180.
 — (Pomatorhinus), 180.
 — *stenorhynchus* (Pomatorhinus), 181.
ochrocephalus (Trachycomus), 384.
oglei (Thringorhina), 224.
olivacea virescens (Iole), 387.
olivaceus olivaceus (Pomatorhinus), 170.
 — (Pomatorhinus), 170.
 — *ripponi* (Pomatorhinus), 171.
 Olive-brown Suthora, 83.
 — Suthora, Yunnan, or Anderson's, 83.
 Olive Bulbul, 387.
 — Bulbul, Arrakan, 387.
 — Bulbul, Brown-eared, 403.
 — Bulbul, Large, 400.
 — Bulbul, Malay Small, 404.
 — Bulbul, Malayan Yellow-vented, 389.
 — Bulbul, Pegu, 401.
 — Bulbul, Siam, 402.
 — Bulbul, Singapore Large, 400.
 — Bulbul, Small, 404.
 — Bulbul, Yellow-vented, 389.
Ophrydomis magnirostre magnirostre, 222.
 — *magnus*, 221.
 — *magnus magnus*, 221.
 Orange Suthora, 81.
 — Suthora, Blyth's, or Assam, 81.
 — Suthora, Karen, or Salvadori's, 82.

- Orange-bellied Chloropsis, 325.
 — Chloropsis, Indian, 325.
ornata (Cissa), 32.
Otocompsa emeria emeria, 371.
 — *emeria fuscicaudata*, 374, 377.
 — *flaviventris*, 379.
 — *flaviventris flaviventris*, 379.
 — *flaviventris minor*, 381.
 — *jocosa abuenis*, 377.
 — *jocosa emeria*, 371. •
 — *jocosa fuscicaudata*, 374, 377.
 — *jocosa peguensis*, 378.
 — *jocosa provincialis*, 373.
Otocompsis emeria peguensis, 378.

pallasii (Cinclus), 438.
 — *marila* (Cinclus), 440.
 — *tenuirostris* (Cinclus), 438.
palustre (Pellorneum), 207.
Paradoxornis flavirostris, 79.
 — *guttaticollis*, 80.
Paradoxornithidæ, 78.
Paridæ, 58.
 Parrot-Bill, Assam Red-headed, 86.
 —, Black-throated, or Gould's, 79.
 —, Burmese Grey-headed, 88.
 —, Great, 78.
 —, Grey-headed, 87.
 —, Red-headed, 85.
 —, Sikkim Grey-headed, 87.
 —, Sikkim Red-Headed, 85.
 —, White-throated, or Austen's, 80.
Parus cyanus, 64.
 — *cyanus tianschanicus*, 64.
 — *major*, 58.
 — *major caschmiriensis*, 60.
 — *major cinereus*, 58.
 — *major commixtus*, 62.
 — *major intermedius*, 60.
 — *major kaschmiriensis*, 60.
 — *major mahrattarum*, 61.
 — *major tibetanus*, 61.
 — *major ziaratensis*, 60.
 — *monticolus*, 62.
 — *monticolus lepharum*, 63.
 — *monticolus monticolus*, 62, 63.
Passeres, 1.
pectoralis (Garrulax), 112.
 — *meridionalis* (Garrulax), 114.
 — *pectoralis* (Garrulax), 112.
 — *semitorquata* (Garrulax), 114.
Pegu Olive Bulbul, 401.
 — *White-throated Bulbul*, 338.
Pellorneum fuscocapillum, 211.
 — *fuscocapillum fuscocapillum*, 211.
 — *ignotum*, 208.
 — *ignotum cinnamomeum*, 210.
 — *ignotum ignotum*, 208.

Pellorneum nigricapitatum, 212.
 — *palustre*, 207.
 — *ruficeps*, 201.
 — *ruficeps granti*, 204.
 — *ruficeps jonesi*, 206.
 — *ruficeps mandellii*, 204.
 — *ruficeps minor*, 206.
 — *ruficeps ruficeps*, 201.
 — *ruficeps subochraceum*, 203.
 — *tickelli assamensis*, 214.
 — *tickelli tickelli*, 213.
penicillata (Kelaartia), 408.
 Persian Magpie, 22.
phœnicium bakeri (Trochaloxyton), 129.
 — *phœnicium* (Trochaloxyton), 128.
 — *ripponi* (Trochaloxyton), 130.
 — (Trochaloxyton), 128.
pica bactriana (Pica), 22.
 — *bottanensis* (Pica), 24.
Pica pica, 21.
 — *pica bactriana*, 22.
 — *pica bottanensis*, 24.
 — *pica sericea*, 23.
 — *sericea* (Pica), 23.
 — (Heterophasa), 269.
 — *picaoides* (Heterophasa), 269.
 — *picaoides* (Sibia), 269.
pileata bengalensis (Timalia), 188.
 — *intermedia* (Timalia), 189.
 — *jerdoni* (Timalia), 189.
 — (Timalia), 188.
 Plain Brown Babbler, 208.
 — *Brown Babbler*, Assam, 208.
 — *Brown Babbler*, Shan, 210.
 — *Brown Wren*, 421.
 Plain-coloured Laughing-Thrush, 132.
 — *Laughing-Thrush*, Nepal, 132.
 Plain-throated Wren-Babbler, 219.
 — *Wren-Babbler*, Tenasserim, 219.
 Plains White-cheeked Bulbul, 365.
Platysmus leucopterus, 45.
plumosus blanfordi (Pycnonotus), 401.
 — *plumosus* (Pycnonotus), 400.
 — (Pycnonotus), 400.
 — *robinsoni* (Pycnonotus), 402.
Pnoepyga albiventris, 428.
 — *albiventris albiventris*, 428.
 — *albiventris pallidior*, 429.
 — *pusilla pusilla*, 430.
 — *squamata squamata*, 428, 429.
Podoces humilis, 57.
poicecephala (Alcippe), 244.
 — *brucei* (Alcippe), 246.
 — *davisoni* (Alcippe), 248.
 — *haringtoniæ* (Alcippe), 250.

- poiocephala karenii* (Alcippe), 250.
 — *magnirostris* (Alcippe), 250.
 — *phayrei* (Alcippe), 247.
 — *poiocephala* (Alcippe), 244.
poiocephalus (Brachypodius), 406.
 — (*Microtarsus*), 406.
poliotis feae (Suthora), 82.
 — *poliotis* (Suthora), 81.
 — (Suthora), 81.
Pomatorhinus olivaceus, 170.
 — *erythrogonys*, 182.
 — *erythrogonys erythrogonys*, 182.
 — *erythrogonys gravivox*, 184.
 — *erythrogonys haringtoni*, 182.
 — *erythrogonys imberbis*, 185.
 — *erythrogonys maclellandi*, 183.
 — *ferruginosus*, 175.
 — *ferruginosus albugularis*, 177.
 — *ferruginosus ferruginosus*, 175.
 — *ferruginosus phayrei*, 176.
 — *horsfieldi*, 172.
 — *horsfieldi horsfieldi*, 172.
 — *horsfieldi melanurus*, 174.
 — *horsfieldi obscurus*, 172.
 — *horsfieldi travancoriensis*, 173.
 — *hypoleucos*, 185.
 — *hypoleucos hypoleucos*, 185.
 — *hypoleucos tickelli*, 187.
 — *nuchalis*, 169.
 — *ochraceiceps*, 180.
 — *ochraceiceps austeni*, 180.
 — *ochraceiceps stenorhynchus*, 181.
 — *olivaceus olivaceus*, 170.
 — *olivaceous ripponi*, 171.
 — *ruficollis*, 178.
 — *ruficollis bakeri*, 178.
 — *ruficollis ruficollis*, 178.
 — *schisticeps*, 165.
 — *schisticeps cryptanthus*, 166.
 — *schisticeps mearsi*, 168.
 — *schisticeps pinwilli*, 168.
 — *schisticeps schisticeps*, 165.
psaroides concolor (*Microscelis*), 342.
 — *ganeesa* (*Microscelis*), 343.
 — (*Microscelis*), 338.
psaroides uigrescens (*Microscelis*), 340.
 — *psaroides* (*Microscelis*), 338.
Pseudominla castaneiceps, 263.
 — *castaneiceps brunneicauda*, 264.
 — *castaneiceps castaneiceps*, 263.
 — *cinerea*, 261.
Psittiparus gularis, 87.
 — *gularis gularis*, 87.
 — *gularis transfluvialis*, 88.
 — *ruficeps*, 85.
 — *ruficeps bakeri*, 86.
 — *ruficeps ruficeps*, 85.
Pteruthius anobarbus, 311.
 — *anobarbus intermedius*, 312.
 — *anobarbus melanotis*, 311.
 — *erythropterus*, 309.
 — *melanotis intermedius*, 312.
 — *melanotis melanotis*, 311.
 — *xanthochloris*, 313.
 — *xanthochloris occidentalis*, 314.
 — *xanthochloris xanthochloris*, 313.
pulchella (*Leioptila*), 280.
 — *pulchella* (*Leioptila*), 280.
 Punjab Raven, 1.
 — Red-vented Bulbul, 363.
pusilla pusilla (*Phoebe*), 430.
Pycnonotidae, 333.
Pycnonotus aurigaster, 390.
 — *aurigaster xanthorrhous*, 390.
 — *blanfordi*, 401.
 — *blanfordi blanfordi*, 401.
 — *blanfordi robinsoni*, 402.
 — *brunneus*, 403.
 — *brunneus brunneus*, 403.
 — *cyaniventris*, 397.
 — *cyaniventris cyaniventris*, 397.
 — *erythrophthalmus*, 404.
 — *erythrophthalmus erythrophthalmus*, 404.
 — *finlaysoni*, 391.
 — *finlaysoni davisoni*, 393.
 — *finlaysoni finlaysoni*, 391.
 — *goiavier*, 389.
 — *goiavier analis*, 389.
 — *goiavier personatus*, 389.
 — *gularis*, 396.
 — *luteolus*, 398.
 — *melanicterus*, 394.
 — *plumosus*, 400.
 — *plumosus blanfordi*, 401.
 — *plumosus plumosus*, 400.
 — *plumosus robinsoni*, 402.
 — *simplex simplex*, 403.
 — *xantholæmus*, 395.
Pycnorhis altirostris altirostris, 199.
 — *altirostris griseigularis*, 200.
 — *sinensis nasalis*, 199.
 — *sinensis saturator*, 198.
 — *sinensis sinensis*, 195.
Pyrrhocorax graculus, 56.
 — *himalayanus*, 55.
 — *pyrrhocorax*, 55.
 — *pyrrhocorax himalayanus*, 55.
pyrrhops (*Stachyridopsis*), 235.
pyrrhoura (*Myzornis*), 322.
 Quaker-Babbler, 244.
 —, Arrakan, 247.
 —, Bombay, 246.

Quaker-Babbler, Lower Burma, 250.
 —, *Nepal White-eyed*, 240.
 —, Nilgiri, 244.
 —, Shan States White-eyed, 243.
 —, Tenasserim, 248.
 —, Upper Burma, 250.
 —, White-eyed, 240.

Racket-tailed Magpie, Black, 43.

— Magpie, Hooded, 44.

Raven, 1.

—, Brown-necked, 5.

—, Punjab, 1.

—, Tibet, 4.

Red-billed Babbler, 235.

— Blue Magpie, Burmese, 27.

— Blue Magpie, Indian, 26.

— Chough, 55.

— Chough, Eastern, 55.

— Leiothrix, 307.

— Leiothrix, Indian, 307.

— Magpie, 25.

— Magpie, Chinese, 25.

Red-capped Babbler, 188.

— Babbler, Bengal, 188.

— Babbler, Burmese, 189.

Red-crowned Jay, 50.

— Jay, Khasia Hills, 52.

— Jay, Rippon's Chin Hills,
52.

— Jay, Western Himalayan, 50.

Red-fronted Babbler, 232.

— Babbler, Assam, 233.

— Babbler, Burmese, 232.

Red-headed Babbler, 230.

— Babbler, Assam, 230.

— Babbler, Bhamo, 232.

— Laughing-Thrush, 123.

— Laughing-Thrush, Chin Hills,
124.

— Laughing-Thrush, Sikkim, 125.

— Laughing-Thrush, Simla, 123.

— Laughing-Thrush, Tenasserim,
127.

— Parrot-Bill, 85.

— Parrot-Bill, Assam, 86.

— Parrot-Bill, Sikkim, 85.

— Suthora, 84.

— Tit, 72.

— Tit, Hume's, 74.

— Tit, Manipur, 74.

— Tit, Rippon's, 75.

— Tit, Simla, 72.

— Tit, Yunnan, 75.

— Tree-Babbler, 221.

Red-tailed Laughing-Thrush,
Burmese, 131.

— Minla, 330.

Red-throated Tit-Babbler, 259.

— Tit-Babbler, Assam, 259.

Red-vented Bulbul, 353.

— Bulbul, Bengal, 361.

— Bulbul, Burmese, 357.

— Bulbul, Central Indian, 355.

— Bulbul, Ceylon, 353.

— Bulbul, Chinese, 360.

— Bulbul, Madras, 374.

— Bulbul, Punjab, 363.

— Bulbul, Tenasserim, 359.

Red-whiskered Bulbul, Bengal, 371.

— Bulbul, Burmese, 378.

— Bulbul, Kuman, 373.

— Bulbul, Mount Abu, 377.

Red-winged Babbler, 236.

— Babbler, Malay, 236.

— Shrike-Babbler, 309.

Rhopocichla atriceps, 252.

— atriceps atriceps, 252.

— atriceps bourdilloni, 253.

— atriceps nigrifrons, 254.

Rimator malacoptilus, 220.

Rippon's Chin Hills Red-crowned
Jay, 52.

— Red-headed Tit, 75.

roberti guttaticollis (Napothera),
217.

— guttaticollis (Turdinulus), 218.

— roberti (Napothera), 217.

— roberti (Turdinulus), 217.

— (*Sphenocichla*), 432.

Rock-Nuthatch, 96.

—, Turkestan, 96.

Rook, 14.

—, Eastern, 14.

rubricapilla minor (Mixornis), 238.

— pileata (Mixornis), 239.

— rubricapilla (Mixornis), 237.

Ruby-throated Bulbul, 396.

rufa (Dendrocitta), 33.

— pallida (Dendrocitta), 35.

— rufa (Dendrocitta), 33.

— saturator (Dendrocitta), 36.

— sclateri (Dendrocitta), 36.

— vagabunda (Dendrocitta), 35.

rufescens (Turdoides), 157.

ruficeps atrosuperciliaris (Suthora),
84.

— bakeri (Psittiparus), 86.

— bhamoensis (Stachyridopsis),
232.

— granti (Pellorneum), 204.

— jonesi (Pellorneum), 206.

— mandellii (Pellorneum), 204.

— minor (Pellorneum), 206.

— (Pellorneum), 201.

— (Psittiparus), 85.

— ruficeps (Pellorneum), 201.

- ruficeps ruficeps* (Psittiparus), 85.
 — *ruficeps* (Stachyridopsis), 230.
 — (Stachyridopsis), 230.
 — *subochraceum* (Pellorneum), 203.
 — (Suthora), 84.
ruficollis bakeri (Pomatorhinus), 178.
 — (Dryonastes), 100.
 — (Pomatorhinus), 178.
 — *ruficollis* (Pomatorhinus), 178.
ruffrons ambigua (Stachyridopsis), 233.
 — *ruffrons* (Stachyridopsis), 232.
 — (Stachyridopsis), 232.
rufigularis rufigularis (Schœniparus), 259.
 — (Schœniparus), 259.
rufogularis assamensis (Ianthocincla), 120.
 — (Ianthocincla), 120.
 — *occidentalis* (Ianthocincla), 121.
 — *rufogularis* (Ianthocincla), 120.
rufonuchalis beavani (Lophophanes), 67.
 — (Lophophanes), 66.
 — *rufonuchalis* (Lophophanes), 66.
Rufous Babbler, 163.
 — Babbler, Ceylonese, 157.
Rufous-bellied Babbler, 190.
Rufous-breasted Laughing-Thrush, 137.
 — Laughing-Thrush, Nilgiri, 137.
Rufous-chinned Laughing-Thrush, 120.
 — Laughing-Thrush, Assam, 120.
 — Laughing-Thrush, Kuman, 121.
 — Laughing-Thrush, Sikkim, 120.
Rufous-necked Laughing-Thrush, 100.
 — Scimitar-Babbler, 178.
 — Scimitar-Babbler, Cachar, 178.
 — Scimitar-Babbler, Nepal, 178.
rufulus (Gampsorhynchus), 194.
 — *rufulus* (Gampsorhynchus), 194.
Rusty-cheeked Scimitar-Babbler, 182.
 — Scimitar-Babbler, Assam, 183.
 — Scimitar-Babbler, Kalaw, 185.
 — Scimitar-Babbler, Sikkim, 182.
 — Scimitar-Babbler, Simla, 182.
 — Scimitar-Babbler, Yunnan, 184.
Rusty-vented Babbler, 222.
 — Babbler, Indian, 222.
Salpornis spilonotus, 416.
 — *spilonotus spilonotus*, 416.
Salvadori's Orange Suthora, 82.
sannio (Dryonastes), 106.
Scaly-breasted Wren, 428.
 — Wren, Nepal, 428.
 — Wren, Western, 429.
schisticeps cryptanthus (Pomatorhinus), 166.
 — *mearsi* (Pomatorhinus), 168.
 — *pinwilli* (Pomatorhinus), 168.
 — (Pomatorhinus), 165.
 — *schisticeps* (Pomatorhinus), 165.
Schœniparus dubius, 255.
 — *dubius dubius*, 255.
 — *dubius genestieri*, 258.
 — *dubius mandellii*, 257.
 — *rufigularis*, 259.
 — *rufigularis rufigularis*, 259.
Scimitar-Babbler, Arrakan Heavy-billed, 185.
 —, Assam Rusty-cheeked, 183.
 —, Brown-flanked, 172.
 —, Burmese Slaty-headed, 168.
 —, Cachar Rufous-necked, 178.
 —, Ceylon Brown-flanked, 174.
 —, Coral-billed, 175.
 —, Deccan Brown-flanked, 172.
 —, Eastern Coral-billed, 176.
 —, Heavy-billed, 185.
 —, Himalayan Slaty-headed, 165.
 —, Kalaw Rusty-cheeked, 185.
 —, Long-billed, 180.
 —, Manipur Long-billed, 180.
 —, Mount Abu Brown-flanked, 172.
 —, Naga Hills Long-billed, 181.
 —, Nepal Rufous-necked, 178.
 —, North-West Slaty-headed, 168.
 —, Rufous-necked, 178.
 —, Rusty-cheeked, 182.
 —, Shan States, 169.
 —, Shan States White-flanked, 171.
 —, Sikkim Rusty-cheeked, 182.
 —, Sikkim Slender-billed, 187.
 —, Simla Rusty-cheeked, 182.
 —, Slaty-headed, 165.
 —, Slender-billed, 187.
 —, Southern Brown-flanked, 173.
 —, Surma Valley Slaty-headed, 166.
 —, Tenasserim Coral-billed, 177.
 —, Tenasserim White-flanked, 170.
 —, Western Coral-billed, 175.
 —, White-flanked, 170.
 —, Yunnan Rusty-cheeked, 184.
Sepiaria abbotti (Malacocincla), 222.
 — (Malacocincla), 222.

- Shan Chestnut-rumped Sibia, 279.
 — Plain Brown Babbler, 210.
 — States Scimitar-Babbler, 169.
 — States Short-tailed Wren-Babbler, 216.
 — States Small Wren-Babbler, 220.
 — States Tit-Babbler, 258.
 — States White-eyed Quaker-Babbler, 243.
 — States White-flanked Scimitar-Babbler, 171.
 Sharpe's Jay, 49.
 Shillong Bar-wing, 283.
 — Chestnut-headed Tit-Babbler, 264.
 — Grey-sided Laughing-Thrush, 104.
 — Yellow-winged Laughing-Thrush, 126.
 Short-tailed Wren-Babbler, 215.
 — Wren-Babbler, Assam, 215.
 — Wren-Babbler, Cachar Smaller, 217.
 — Wren-Babbler, Northern Assam, 218.
 — Wren-Babbler, Shan States, 216.
 Shrike-Babbler, Burmese Chestnut-throated, 312.
 —, Chestnut-throated, 311.
 —, Green, 313.
 —, Himalayan Chestnut-throated, 311.
 —, Nepal Green, 313.
 —, Red-winged, 309.
 —, Sikkim White-headed, 194.
 —, Simla Green, 314.
 —, White-headed, 194.
 Siam Olive Bulbul, 402.
 — Yellow-breasted Babbler, 238.
 Siamese White-crested Laughing-Thrush, 111.
 Sibia, Assam Beautiful, 280.
 —, Beautiful, 280.
 —, Black-headed, 271.
 —, Black-winged, 276.
 —, Chestnut-rumped, 277.
 —, Grey, 274.
 —, Long-tailed, 269.
 —, Nepal Long-tailed, 269.
 — *nipalensis*, 286.
 — *nipalensis nipalensis*, 286.
 — *picaoides picaoides*, 269.
 —, Shan Chestnut-rumped, 279.
 —, Sikkim Black-headed, 271.
 —, Sikkim Chestnut-rumped, 277.
 —, Simla Black-headed, 272.
 —, Tenasserim Black-winged, 276.
 —, Tounghoo Black-winged, 277.
 Sikkim Black-headed Sibia, 271.
 — Black-throated Babbler, 225.
 — Black-Tit, 67.
 — Chestnut-headed Tit-Babbler, 263.
 — Chestnut-rumped Sibia, 277.
 — Grey-headed Parrot-Bill, 87.
 — Grey-sided Laughing-Thrush, 103.
 — Red-headed Laughing-Thrush, 125.
 — Red-headed Parrot-Bill, 85.
 — Rufous-chinned Laughing-Thrush, 120.
 — Rusty-cheeked Scimitar-Babbler, 182.
 — Slender-billed Scimitar-Babbler, 187.
 — Striated Laughing-Thrush, 146.
 — White-headed Shrike-Babbler, 194.
 — White-spotted Laughing-Thrush, 118.
 — Yellow-billed Magpie, 28.
 Silver-eared Mesia, 329.
 — Mesia, Indian, 329.
 Simla Black-headed Sibia, 272.
 — Black-Tit, 66.
 — Green-backed Tit, 62.
 — Green Shrike-Babbler, 314.
 — Himalayan Tree-Creeper, 410.
 — Red-headed Laughing-Thrush, 123.
 — Red-headed Tit, 72.
 — Rusty-cheeked Scimitar-Babbler, 182.
 — Spotted Babbler, 206.
 — Streaked Laughing-Thrush, 142.
 — Striated Laughing-Thrush, 145.
 — Stripe-throated Siva, 293.
 — White-browed Fulvetta, 267.
 simplex simplex (*Pycnonotus*), 403.
 Sind House-Crow, 18.
 — Jungle-Babbler, 154.
 — Tree-Pie, 35.
sinensis (*Chrysomma*), 195.
 — *hypoleucus* (*Chrysomma*), 198.
 — *nasalis* (*Chrysomma*), 199.
 — *nasalis* (*Pycnorhis*), 199.
 — *saturator* (*Chrysomma*), 198.
 — *saturator* (*Pycnorhis*), 198.
 — *sinensis* (*Chrysomma*), 195.
 — *sinensis* (*Pycnorhis*), 195.
 Singapore Large Olive Bulbul, 400.
 Sinlum Long-tailed Wren, 424.
 Sitta *castanea*, 90.
 — *castanea almora*, 92.
 — *castanea castanea*, 90.
 — *castanea cinnamomventris*, 91.

- Sitta castanea neglecta*, 93.
 — *castaneiventris almora*, 92.
 — *castaneiventris castaneiventris*, 90.
 — *castaneiventris cinnamoventris*, 91.
 — *castaneiventris neglecta*, 93.
 — *europæa*, 94.
 — *europæa nagaensis*, 94.
 — *formosa*, 98.
 — *frontalis*, 99.
 — *frontalis frontalis*, 99.
 — *himalayensis*, 89.
 — *kashmiriensis*, 95.
 — *leucopsis*, 97.
 — *leucopsis leucopsis*, 97.
 — *neumayer tephronota*, 96.
 — *tephronota*, 96.
 — *tephronota iranica*, 96.
Sittidæ, 89.
Siva, Blue-winged, 294.
 —, Burmese Stripe-throated, 294.
 — *cyanuroptera*, 294.
 — *cyanuroptera cyanuroptera*, 294.
 —, Nepal Blue-winged, 294.
 —, Nepal Stripe-throated, 292.
 —, Simla Stripe-throated, 293.
 — *strigula*, 292.
 — *strigula castaneicauda*, 294.
 — *strigula simlaensis*, 293.
 — *strigula strigula*, 292, 293.
 —, Stripe-throated, 292.
Slaty-bellied Wren, 433.
 — *Wren*, Nepal, 433.
Slaty-headed Scimitar-Babbler, 165.
 — *Scimitar-Babbler*, Burmese, 168.
 — *Scimitar-Babbler*, Himalayan, 165.
 — *Scimitar-Babbler*, North-West, 168.
 — *Scimitar-Babbler*, Surrma Valley, 166.
Slender-billed Babbler, 164.
 — *Scimitar-Babbler*, 187.
 — *Scimitar-Babbler*, Sikkim, 187.
Small Babax, 149.
 — *Babax*, Chinese, 149.
 — *Babax*, Mount Victoria, 150.
 — *Olive Bulbul*, 404.
 — *Olive Bulbul*, Malay, 404.
 — *White-throated Babbler*, 192.
 — *White-throated Babbler*, Mount Abu, 193.
 — *White-throated Babbler*, Southern, 192.
 — *Wren-Babbler*, Shan States, 220.
Smaller Short-tailed Wren-Babbler, Cachar, 217.
somervillei (*Turdoides*), 156.
Southern Brown-flanked Scimitar-Babbler, 173.
 — *Grey Tit*, 61.
 — *Indian Black Bulbul*, 343.
 — *Jungle-Babbler*, 153.
 — *Jungle-Crow*, 9.
 — *Small White-throated Babbler*,
 — *Spotted Babbler*, 201.
 — *Tree-Pie*, 37.
 — *Yellow-cheeked Tit*, 71.
Spelæornis caudatus, 427.
 — *longicaudatus*, 422.
 — *longicaudatus longicaudatus*, 422.
 — *longicaudatus oatesi*, 426.
 — *longicaudatus reptatus*, 425.
 — *longicaudatus sinlumensis*, 424.
Sphenocichla roberti, 432.
spilonotus (*Macholophus*), 69.
 — (*Salpornis*), 416.
 — *spilonotus* (*Macholophus*), 69.
 — *spilonotus* (*Salpornis*), 416.
 — *subviridis* (*Macholophus*), 70.
Spiny Babbler, 165.
Spizixus canifrons, 382.
 — *canifrons canifrons*, 382.
splendens (*Corvus*), 15.
 — *insolens* (*Corvus*), 19.
 — *protegatus* (*Corvus*), 20.
 — *splendens* (*Corvus*), 15.
 — *zugmayeri* (*Corvus*), 18.
Spotted Babbler, 201.
 — *Babbler*, Assam, 204.
 — *Babbler*, Burmese, 206.
 — *Babbler*, Malayan, 203.
 — *Babbler*, Marsh, 207.
 — *Babbler*, Simla, 206.
 — *Babbler*, Southern, 201.
 — *Babbler*, Travancore, 204.
Spotted-breasted Laughing-Thrush, 148.
Spotted-grey Creeper, 416.
 — *Creeper*, Bombay, 416.
squamata squamata (*Pnoepyga*), 428, 429.
squamatum (*Trochalopteron*), 136.
Stachyridopsis pyrrhops, 235.
 — *ruficeps*, 230.
 — *ruficeps bhamoensis*, 232.
 — *ruficeps ruficeps*, 230.
 — *rufifrons*, 232.
 — *rufifrons ambigua*, 233.
 — *rufifrons rufifrons*, 232.
Stachyris chrysæa, 228.
 — *chrysæa assimilis*, 229.
 — *chrysæa chrysæa*, 228.
 — *nigriceps*, 225.
 — *nigriceps colfarti*, 226.
 — *nigriceps davisoni*, 227.

- Stachyris nigriceps nigriceps*, 225.
Stactocichla merulina, 148.
 — *merulina merulina*, 148.
Staphida, Brown-headed, 289.
 — *castaneiceps*, 287.
 —, Chestnut-headed, 287.
 — *striata*, 289.
 — *striata rufigenis*, 290.
 — *striata striata*, 289.
 —, White-browed, 290.
Streak-crowned Jay, 49.
Streaked Bulbul, 385.
 — *Bulbul*, Malaccan, 385.
 — *Laughing-Thrush*, 142.
 — *Laughing-Thrush*, Baluchistan, 144.
 — *Laughing-Thrush*, Gilgit, 144.
 — *Laughing-Thrush*, Manipur, 141.
 — *Laughing-Thrush*, Nepalese, 142.
 — *Laughing-Thrush*, Simla, 142.
striata austeni (*Grammatoptila*), 146.
 — (*Grammatoptila*), 145.
 — *rufigenis* (*Staphida*), 290.
 — *sikkimensis* (*Grammatoptila*), 146.
 — (*Staphida*), 289.
 — *striata* (*Grammatoptila*), 145.
 — *striata* (*Staphida*), 289.
Striated Babbler, 158.
 — *Green Bulbul*, 351.
 — *Laughing-Thrush*, 145.
 — *Laughing-Thrush*, Assam, 146.
 — *Laughing-Thrush*, Sikkim, 146.
 — *Laughing-Thrush*, Simla, 145.
striatus (*Alcurus*), 351.
 — *polioplocamus* (*Turdoides*), 156.
 — *striatus* (*Turdoides*), 155.
Strigula castaneicauda (*Siva*), 294.
 — *simlaensis* (*Siva*), 293.
 — (*Siva*), 292.
 — *strigula* (*Siva*), 292, 293.
Stripe-fronted Babbler, Assam, 214.
 — *Babbler*, Burmese, 213.
Stripe-throated Bulbul, 391.
 — *Bulbul*, Arrakan, 393.
 — *Bulbul*, Malaccan, 391.
 — *Siva*, 292.
 — *Siva*, Burmese, 294.
 — *Siva*, Nepal, 292.
 — *Siva*, Simla, 293.
 — *Yuhina*, 296.
 — *Yuhina*, Nepal, 296.
subrufa (*Argya*), 163.
subunicolor subunicolor (*Trochalopteron*), 132.
 — (*Trochalopteron*), 132.
Sultan Tit, 77.
 — *Ti*, Indian, 77.
sultanea (*Melanochlora*), 77.
 — *sultanea* (*Melanochlora*), 77.
superciliaris superciliaris (*Xiphiramphus*), 187.
 — (*Xiphiramphus*), 187.
Surma Valley Slaty-headed Scimitar-Babbler, 166.
Suthora, Black-browed, 84.
 —, Blyth's, or Assam Orange, 81.
 —, Karenni, or Salvadori's Orange, 82.
 —, Olive-brown, 83.
 —, Orange, 81.
 — *poliotis*, 81.
 — *poliotis fæe*, 82.
 — *poliotis poliotis*, 81.
 —, Red-headed, 84.
 — *ruficeps*, 84.
 — *ruficeps atrosuperciliaris*, 84.
 — *webbiana*, 83.
 — *webbiana brunnea*, 83.
 —, Yunnan, or Anderson's Olive-brown, 83.
Tailed Wren, 427.
temia (*Crypsirhina*), 43.
Tenasserim Black-winged *Sibia*, 276.
 — *Coral-billed Scimitar-Babbler*, 177.
 — *Heavy-billed Scimitar-Babbler*, 187.
 — *Plain-throated Wren-Babbler*, 219.
 — *Quaker-Babbler*, 248.
 — *Red-headed Laughing-Thrush*, 127.
 — *Red-vented Bulbul*, 359.
 — *Tit-Babbler*, 255.
 — *Tree-Pie*, 36.
 — *White-flanked Scimitar-Babbler*, 170.
tephrogenys burmanicus (*Criniger*), 337.
 — *flaveolus* (*Criniger*), 334.
 — *griseiceps* (*Criniger*), 338.
 — *tephrogenys* (*Criniger*), 333.
tephronota iranica (*Sitta*), 96.
 — (*Sitta*), 96.
terricolor malabaricus (*Turdoides*), 153.
 — *sindiamus* (*Turdoides*), 154.
 — *terricolor* (*Turdoides*), 152.
 — (*Turdoides*), 152.
Tesia castaneocoronata, 434.
 — *castaneocoronata castaneocoronata*, 434.
 — *cyaniventer*, 433.

- Tesia cyaniventer cyaniventer*, 433.
thompsoni (*Cerasophila*), 344.
Thringorhina oglei, 224.
Thrush, Ashy Laughing-, 119.
 —, Assam Ashy Laughing-, 119.
 —, Assam Rufous-chinned Laughing-, 120.
 —, Assam Striated Laughing-, 146.
 —, Baluchistan Streaked Laughing-, 144.
 —, Banasore White-breasted Laughing-, 139.
 —, Black-gorgeted Laughing-, 112.
 —, Black-throated Laughing-, 103.
 —, Blue-winged Laughing-, 136.
 —, Brown-capped Laughing-, 122.
 —, Burmese Black-gorgeted Laughing-, 114.
 —, Burmese Black-throated Laughing-, 103.
 —, Burmese Crimson-winged Laughing-, 130.
 —, Burmese Necklaced Laughing-, 115.
 —, Burmese Red-tailed Laughing-, 131.
 —, Burmese White-crested Laughing-, 110.
 —, Cachar Brown-capped Laughing-, 122.
 —, Cachar Crimson-winged Laughing-, 129.
 —, Cachar Yellow-breasted Laughing-, 116.
 —, Chestnut-backed Laughing-, 102.
 —, Chin Hills Red-headed Laughing-, 124.
 —, Crimson-winged Laughing-, 128.
 —, Eastern Himalayan White-crested Laughing-, 109.
 —, Gilgit Streaked Laughing-, 144.
 —, Grey-sided Laughing-, 103.
 —, Indian Black-gorgeted Laughing-, 112.
 —, Indian Necklaced Laughing-, 114.
 —, Kachin Grey-sided Laughing-, 105.
 —, Kuman Rufous-chinned Laughing-, 121.
 —, Manipur Streaked Laughing-, 141.
 —, Mynall White-breasted Laughing-, 140.
 —, Necklaced Laughing-, 114.
 —, Nepal Black-faced Laughing-, 132.
Thrush, Nepal Crimson-winged Laughing-, 128.
 —, Nepal Plain-coloured Laughing-, 132.
 —, Nepalese Streaked Laughing-, 142.
 —, Nilgiri Rufous-breasted Laughing-, 137.
 —, Plain-coloured Laughing-, 132.
 —, Red-headed Laughing-, 123.
 —, Rufous-breasted Laughing-, 137.
 —, Rufous-chinned Laughing-, 120.
 —, Rufous-necked Laughing-, 100.
 —, Shillong Grey-sided Laughing-, 104.
 —, Shillong Yellow-winged Laughing-, 126.
 —, Siamese White-crested Laughing-, 111.
 —, Sikkim Grey-sided Laughing-, 103.
 —, Sikkim Red-headed Laughing-, 125.
 —, Sikkim Rufous-chinned Laughing-, 120.
 —, Sikkim Striated Laughing-, 146.
 —, Sikkim White-spotted Laughing-, 118.
 —, Simla Red-headed Laughing-, 123.
 —, Simla Streaked Laughing-, 142.
 —, Simla Striated Laughing-, 145.
 —, Spotted-breasted Laughing-, 148.
 —, Streaked Laughing-, 142.
 —, Striated Laughing-, 145.
 —, Tenasserim Red-headed Laughing-, 127.
 —, Travancore White-breasted Laughing-, 139.
 —, Variegated Eastern Laughing-, 130.
 —, Variegated Laughing-, 133.
 —, Western Himalayan White-crested Laughing-, 108.
 —, Western Variegated Laughing-, 135.
 —, Western White-throated Laughing-, 117.
 —, White-breasted Laughing-, 139.
 —, White-browed Laughing-, 106.
 —, White-headed Laughing-, 108.
 —, White-spotted Laughing-, 118.
 —, White-throated Laughing-, 117.
 —, Wynaad Laughing-, 111.
 —, Yellow-breasted Laughing-, 116.
 —, Yellow-throated Laughing-, 107.
Tianschan Blue Tit, 64.

- Tibet Babax, Giant, 151.
 — Great Tit, 61.
 — Raven, 4.
 Tibetan Wren, 421.
Tichodroma muraria, 417.
tickelli assamensis (Pellorneum),
 214.
 — *tickelli* (Pellorneum), 213.
Timalia pileata, 188.
 — *pileata bengalensis*, 188.
 — *pileata intermedia*, 189.
 — *pileata jerdoni*, 189.
Timahiidae, 100.
Timaliinae, 100.
tiphia (*Ægithina*), 316.
 — *humei* (*Ægithina*), 320.
 — *multicolor* (*Ægithina*), 319.
 — *tiphia* (*Ægithina*), 316.
 — *zeylonica* (*Ægithina*), 319.
 Tit, Afghan Grey, 60.
 —, Black-, 66.
 —, Black-spotted Yellow-, 69.
 —, Blue, 64.
 —, Brown Crested, 68.
 —, Burmese Black-spotted
 Yellow-, 70.
 —, Burmese Great, 62.
 —, Crested Black-, 65.
 —, Eastern Green-backed, 63.
 —, Great, 58.
 —, Green-backed, 62.
 —, Hume's Red-headed or Manipur
 Red-headed, 74.
 —, Indian Grey, 58.
 —, Indian Sultan, 77.
 —, Kashmir Grey, 60.
 —, Northern Black-spotted
 Yellow-, 69.
 —, Northern Yellow-cheeked, 71.
 —, Red-headed, 72.
 —, Sikkim Black-, 67.
 —, Simla Black-, 66.
 —, Simla Green-backed, 62.
 —, Simla Red-headed, 72.
 —, Southern Grey, 61.
 —, Southern Yellow-cheeked, 71.
 —, Sultan, 77.
 —, Tianschan Blue, 64.
 —, Tibet Great, 61.
 —, White-cheeked, 75.
 —, White-throated, 76.
 —, Yellow-cheeked, 71.
 —, Yunnan, or Rippon's Red-
 headed, 75.
 Tit-Babbler, 255.
 —, Assam, 257.
 —, Assam Red-throated, 259.
 —, Chestnut-headed, 263.
 —, Dusky Green, 261.
 Tit-Babbler, Red-throated, 259.
 —, Shan States, 258.
 —, Shillong Chestnut-headed, 264.
 —, Sikkim Chestnut-headed, 263.
 —, Tenasserim, 255.
 Tounghoo Black-winged Sibia, 277.
Trachycomus ochrocephalus, 384.
Travancore Black-fronted Babbler,
 253.
 — Spotted Babbler, 204.
 — White-breasted Laughing-
 Thrush, 139.
 Tree-Babbler, 221.
 —, Brown-headed, 222.
 —, Red-headed, 221.
 Tree-Creeper, Brown-throated, 415.
 —, Common, 413.
 —, Himalayan, 410.
 —, Manipur Brown-throated, 415.
 —, Nepal Common, 413.
 —, North-West Indian Common,
 414.
 —, Simla Himalayan, 410.
 —, Western Himalayan, 412.
 Tree-Pie, 33.
 —, Andaman, 43.
 —, Bengal, 35.
 —, Black-browed, 41.
 —, Burmese Hill, 40.
 —, Chin Hills, 36.
 —, Eastern Himalayan, 38.
 —, Hill, 38.
 —, Indian, 33.
 —, Sind, 35.
 —, Southern, 37.
 —, Tenasserim, 36.
 —, Western Himalayan, 40.
Trochalopteron affine, 132.
 — *affine affine*, 132.
 — *cachinans*, 137.
 — *cachinans cachinans*, 137.
 — *erythrocephalum*, 123.
 — *erythrocephalum chrysopterum*,
 126.
 — *erythrocephalum erythrocephala-*
 lum, 123.
 — *erythrocephalum erythrolæma*,
 124.
 — *erythrocephalum melanostigma*,
 127.
 — *erythrocephalum nigrimentum*,
 125.
 — *jerdoni*, 139.
 — *jerdoni fairbanki*, 139.
 — *jerdoni jerdoni*, 139.
 — *jerdoni meridionale*, 140.
 — *lineatum*, 142.
 — *lineatum gilgit*, 144.
 — *lineatum griseiventior*, 142.

- Trochalopteron lineatum lineatum*, 142.
 — *lineatum ziaratensis*, 144.
 — *milnei sharpei*, 131.
 — *phœnicium*, 128.
 — *phœnicium bakeri*, 129.
 — *phœnicium phœnicium*, 128.
 — *phœnicium ripponi*, 130.
 — *squamatum*, 136.
 — *subunicolor*, 132.
 — *variegatum*, 133.
 — *variegatum simile*, 135.
 — *variegatum variegatum*, 133.
 — *virgatum*, 141.
troglydtes neglectus (*Troglydtes*), 419.
 — *nipalensis* (*Troglydtes*), 418.
 — *tibetanus* (*Troglydtes*), 421.
Troglydtes troglydtes, 418.
 — *troglydtes neglectus*, 419.
 — *troglydtes nipalensis*, 418.
 — *troglydtes tibetanus*, 421.
Troglodytidae, 418.
Turdinulus brevicaudatus striatus, 215.
 — *brevicaudatus venningi*, 216.
 — *epilepidotus bakeri*, 220.
 — *epilepidotus davisoni*, 219.
 — *roberti guttaticollis*, 218.
 — *roberti roberti*, 217.
Turdoides griseus griseus, 156.
 — *griseus striatus*, 155.
 — *rufescens*, 157.
 — *striatus polioplocamus*, 156.
 — *striatus striatus*, 155.
 — *terricolor*, 152.
 — *terricolor malabaricus*, 153.
 — *terricolor sindianus*, 154.
Turdus somervillei, 156.
 — *terricolor terricolor*, 152.
Turkestan Rock-Nuthatch, 96.

Upper Burma Quaker-Babbler, 250.
Urocissa erythrorhyncha, 25.
 — *erythrorhyncha erythrorhyncha*, 25.
 — *erythrorhyncha magnirostris*, 27.
 — *erythrorhyncha occipitalis*, 26.
 — *flavirostris*, 28.
 — *flavirostris cucullata*, 29.
 — *flavirostris flavirostris*, 28.
 — *melanocephala magnirostris*, 27.
 — *melanocephala melanocephala*, 25.
 — *melanocephala occipitalis*, 26.

varians (*Crypsirhina*), 43.
Variegated Laughing-Thrush, 133.
 — *Laughing-Thrush, Eastern*, 133.
 — *Laughing-Thrush, Western*, 135.
variegatum simile (*Trochalopteron*), 135.
 — (*Trochalopteron*), 133.
 — *variegatum* (*Trochalopteron*), 133.
Velvet-fronted Nuthatch, 99.
virescens (*Iole*), 387.
 — *virescens* (*Iole*), 387.
viridissima (*Ægithina*), 320.
 — *viridissima* (*Ægithina*), 320.
vinipecta (*Fulvetta*), 266.
 — *kangrae* (*Fulvetta*), 267.
 — *riponi* (*Fulvetta*), 268.
 — *vinipecta* (*Fulvetta*), 266.
virgatum (*Trochalopteron*), 141.

waddelli (*Babax*), 151.
Wall-Creeper, 417.
webbiana brunnea (*Suthora*), 83.
 — (*Suthora*), 83.
Wedge-billed Wren, 432.
Western Cinnamon-bellied Nuthatch, 92.
 — *Coral-billed Scimitar-Babbler*, 175.
 — *Himalayan Red-crowned Jay*, 50.
 — *Himalayan Tree-Creeper*, 412.
 — *Himalayan Tree-Pie*, 40.
 — *Himalayan White-crested Laughing-Thrush*, 108.
 — *Scaly-breasted Wren*, 429.
 — *Variegated Laughing-Thrush*, 135.
 — *White-throated Laughing-Thrush*, 117.
 — *Yellow-billed Magpie*, 29.
 — *Yellow-eyed Babbler*, 198.
White-bellied Herpornis, 305.
 — *Herpornis, Nepal*, 305.
White-breasted Asiatic Dipper, 436.
 — *Laughing-Thrush*, 139.
 — *Laughing-Thrush, Banasore*, 139.
 — *Laughing-Thrush, Mynall*, 140.
 — *Laughing-Thrush, Travancore*, 139.
White-browed Bulbul, 398.
 — *Fulvetta*, 266.
 — *Fulvetta, Chin Hills*, 268.
 — *Fulvetta, Nepal*, 266.
 — *Fulvetta, Simla*, 267.
 — *Laughing-Thrush*, 106.
 — *Staphida*, 290.

- White-cheeked Bulbul, 364.
 — Bulbul, Himalayan, 364.
 — Bulbul, Plains, 365.
 — Nuthatch, 97.
 — Nuthatch, Himalayan, 97.
 — Tit, 75.
 White-crested Laughing-Thrush,
 Burmese, 110.
 — Laughing-Thrush, Eastern
 Himalayan, 109.
 — Laughing-Thrush, Siamese, 111.
 — Laughing-Thrush, Western
 Himalayan, 108.
 White-eared Bulbul, Bannu, 367.
 White-eyed Quaker-Babbler, 240.
 — Quaker-Babbler, Nepal, 240.
 — Quaker-Babbler, Shan States,
 243.
 White-flanked Scimitar-Babbler,
 170.
 — Scimitar-Babbler, Shan States,
 171.
 — Scimitar-Babbler, Tenasserim,
 170.
 White-headed Babbler, 156.
 — Bulbul, Burmese, 344.
 — Laughing-Thrush, 108.
 — Shrike-Babbler, 194.
 — Shrike-Babbler, Sikkim, 194.
 White-spotted Laughing-Thrush,
 118.
 — Laughing-Thrush, Sikkim, 118.
 White-tailed Nuthatch, 89.
 White-throated Babbler, 162.
 — Babbler, Mount Abu Small, 193.
 — Babbler, Small, 192.
 — Babbler, Southern Small, 192.
 — Bulbul, Brown, 333.
 — Bulbul, Burmese Yellow, 337.
 — Bulbul, Indian Yellow, 334.
 — Bulbul, Malayan Brown, 333.
 — Bulbul, Pegu, 338.
 — Bulbul, Yellow, 334.
 — Laughing-Thrush, 117.
 — Laughing-Thrush, Western, 117.
 — Parrot-Bill, 80.
 — Tit, 76.
 White-winged Jay, 45.
 Wren, 418.
 —, Assam Long-tailed, 422.
 —, Brown, 430.
 —, Cachar Wedge-billed, 432.
 —, Chestnut-headed, 434.
 —, Chin Hills Long-tailed, 426.
 —, Kashmir, 419.
 —, Long-tailed, 422.
 —, Mekong Long-tailed, 425.
 —, Nepal, 418.
 —, Nepal Scaly-breasted, 428.
 Wren, Nepal Slaty-bellied, 433.
 —, Plain Brown, 421.
 —, Scaly-breasted, 428.
 —, *Sinlum* Long-tailed, 424.
 —, Slaty-bellied, 433.
 —, Tailed, 427.
 —, Tibetan, 421.
 —, Western Scaly-breasted, 429.
 Wren-Babbler, Assam Short-tailed,
 215.
 —, Cachar Smaller Short-tailed, 217.
 —, Long-billed, 220.
 —, Northern Assam Short-tailed,
 218.
 —, Plain-throated, 219.
 —, Shan States Short-tailed, 216.
 —, Shan States Small, 220.
 —, Short-tailed, 215.
 —, Tenasserim Plain-throated, 219.
 Wynaad Laughing-Thrush, 111.
 Xanthixus flavescens, 367.
 — flavescens flavescens, 367.
 — flavescens vividus, 370.
 xanthochloris occidentalis (*Pteru-*
 thius), 314.
 — (*Pteruthius*), 313.
 — xanthochloris (*Pteruthius*), 313.
 xanthogenys aplonotus (*Machlo-*
 lophus), 71.
 — (*Machlolophus*), 71.
 — xanthogenys (*Machlolophus*), 71.
 xantholamus (*Pycnonotus*), 395.
 xantholeuca (*Erpornis*), 305.
 — xantholeuca (*Erpornis*), 305.
 Xiphirampus superciliaris, 187.
 — superciliaris superciliaris, 187.
 Yellow-billed Chough, 56.
 — Magpie, 28.
 — Magpie, Sikkim, 28.
 — Magpie, Western, 29.
 — Yellow-eyed Babbler, 199.
 — Yellow-eyed Babbler, Assam, 200.
 Yellow-breasted Babbler, 237.
 — Babbler, Assam, 237.
 — Babbler, Malay, 239.
 — Babbler, Siam, 238.
 — Laughing-Thrush, 116.
 — Laughing-Thrush, Cachar, 116.
 Yellow-browed Bulbul, 386.
 Yellow Bulbul, Black-crested, 379.
 — Bulbul, Himalayan Black-
 crested, 379.
 — Bulbul, Malayan Black-headed,
 381.
 Yellow-cheeked Tit, 71.

- Yellow-cheeked Tit, Northern, 71.
 — Tit, Southern, 71.
 Yellow-crowned Bulbul, 384.
 Yellow-eared Bulbul, 408.
 Yellow-eyed Babbler, 195.
 — Babbler, Assam Yellow-billed, 200.
 — Babbler, Bhutan, 198.
 — Babbler, Ceylon, 199.
 — Babbler, Chinese, 195.
 — Babbler, Western, 198.
 — Babbler, Yellow-billed, 199.
 Yellow-naped Ixulus, 302.
 — Ixulus, Mishmi, 303.
 Yellow-throated Bulbul, 395.
 — Laughing-Thrush, 107.
 Yellow-Tit, Black-spotted, 69.
 —, Burmese Black-spotted, 70.
 —, Northern Black-spotted, 69.
 Yellow-vented Brown Bulbul, 390.
 — Brown Bulbul, Kachin Hills, 390.
 — Olive Bulbul, 389.
 — Olive Bulbul, Malayan, 389.
 Yellow White-throated Bulbul, 334.
 — White-throated Bulbul, Burmese, 337.
 Yellow White-throated Bulbul, Indian, 334.
 Yellow-winged Bulbul, 367.
 — Bulbul, Arrakan, 367.
 — Bulbul, Muleyit, 370.
 — Laughing-Thrush, Shillong, 126.
 Yuhina, Bhamo Brown-chinned, 297.
 —, Black-chinned, 298.
 —, Brown-chinned, 297.
 — diademata, 297.
 — diademata ampelina, 297.
 — gularis, 296.
 — gularis gularis, 296.
 —, Nepal Black-chinned, 298.
 —, Nepal Stripe-throated, 296.
 — nigrimentum, 298.
 — nigrimentum nigrimentum, 298.
 —, Stripe-throated, 296.
 Yunnan Olive-brown Suthora, 83.
 — Red-headed Tit, 75.
 — Rusty-cheeked Scimitar-Babbler, 184.
 zeylonicus (Hemitarsus), 384.

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